X9SRA

USER'S MANUAL

Revision 1.1

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

Super Micro Computer, Inc. ("Supermicro") reserves the right to make changes to the product described in this manual at any time and without notice. This product, including software and documentation, is the property of Supermicro and/or its licensors, and is supplied only under a license. Any use or reproduction of this product is not allowed, except as expressly permitted by the terms of said license.

IN NO EVENT WILL SUPER MICRO COMPUTER, INC. BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, SPECULATIVE OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR INABILITY TO USE THIS PRODUCT OR DOCUMENTATION, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN PARTICULAR, SUPER MICRO COMPUTER, INC. SHALL NOT HAVE LIABILITY FOR ANY HARDWARE, SOFTWARE, OR DATA STORED OR USED WITH THE PRODUCT, INCLUDING THE COSTS OF REPAIRING, REPLACING, INTEGRATING, INSTALLING OR RECOVERING SUCH HARDWARE, SOFTWARE, OR DATA.

Any disputes arising between manufacturer and customer shall be governed by the laws of Santa Clara County in the State of California, USA. The State of California, County of Santa Clara shall be the exclusive venue for the resolution of any such disputes. Supermicro's total liability for all claims will not exceed the price paid for the hardware product.

FCC Statement: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate".

WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

Manual Revision 1.1

Release Date: March 5, 2014

Unless you request and receive written permission from Super Micro Computer, Inc., you may not copy any part of this document. Information in this document is subject to change without notice. Other products and companies referred to herein are trademarks or registered trademarks of their respective companies or mark holders.

Copyright © 2014 by Super Micro Computer, Inc. All rights reserved.
Printed in the United States of America

Preface

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPERO® X9SRA motherboard series.

About This Motherboard

The SUPERO® X9SRA motherboard series supports a single Intel® E5-1600 / E5-2600 Series Processor (2011-pin, Socket R). With the Intel® C600 series chipset built in, the X9SRA motherboard series offers top-of-the-line system performance and storage capability. Features such as eight SAS ports, support for up to 256GB of memory, dual 1Gb LAN, USB 3.0 and SP/DIF support make the X9SRA motherboard series ideal for high end workstation platforms.

Please refer to our website (http://www.supermicro.com/products/) for processor and memory support updates.

*This product is intended to be installed and serviced by professional technicians.

Manual Organization

Chapter 1 describes the features, specifications and performance of the motherboard, and provides detailed information on the Intel Patsburg chipset.

Chapter 2 provides hardware installation instructions. Read this chapter when installing the processor, memory modules and other hardware components into the system. If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for video, memory and system setup stored in the CMOS.

Chapter 4 includes an introduction to the BIOS, and provides detailed information on running the CMOS Setup utility.

Appendix A provides BIOS Error Beep Codes.

Appendix B lists software program installation instructions**.**

Appendix C contains the UEFI BIOS Recovery instructions.

Conventions Used in the Manual:

Special attention should be given to the following symbols for proper installation and to prevent damage done to the components or injury to yourself:

Danger/Caution: Instructions to be strictly followed to prevent catastrophic system failure or to avoid bodily injury

Warning: Critical information to prevent damage to the components or data loss.

Important: Important information given to ensure proper system installation or to relay safety precautions.

Note: Additional Information given to differentiate various models or provides information for correct system setup.

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc. 980 Rock Ave. San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information) support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V. Het Sterrenbeeld 28, 5215 ML 's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information) support@supermicro.nl (Technical Support) rma@supermicro.nl (Customer Support)
Web Site:	www.supermicro.com

Asia-Pacific

Address:	Super Micro Computer, Inc. 3F, No. 150, Jian 1st Rd. Zhonghe Dist., New Taipei City 235 Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Tel:	+886-(2)-8226-3990
Web Site:	www.supermicro.com.tw

Table of Contents

Preface

Chapter 1 Introduction

1-1 Overview 1-1
1-2 Chipset Overview 1-9
1-3 Special Features 1-10
1-4 PC Health Monitoring 1-10
1-5 ACPI Features 1-11
1-6 Power Supply 1-11
1-7 Super I/O 1-12

Chapter 2 Installation

2-1 Static-Sensitive Devices 2-1
Precautions 2-1
Unpacking 2-1
2-2 Processor and Heatsink Installation 2-2
Opening the LGA2011 Socket 2-2
Installing the LGA2011 Processor 2-4
Installing a Passive CPU Heatsink 2-6
Removing the Heatsink 2-7
2-3 Installing DDR3 Memory 2-8
DIMM Installation 2-8
Removing Memory Modules 2-8
Memory Support 2-9
Memory Population Guidelines 2-10
2-4 Motherboard Installation 2-11
Tools Needed 2-11
Location of Mounting Holes 2-11
Installing the Motherboard 2-12
2-5 Connectors/IO Ports 2-13
Motherboard I/O Backpanel 2-13
ATX PS/2 Keyboard/Mouse Ports 2-14
Universal Serial Bus (USB) 2-15
Ethernet Ports 2-16
(Back_Panel) High Definition Audio (HD Audio) 2-16
Front Control Panel 2-17
Front Control Panel Pin Definitions 2-18
Power LED 2-18

HDD LED 2-18
Power Fail LED 2-18
NIC1/NIC2 (LAN1/LAN2) 2-19
Overheat (OH)/Fan Fail 2-19
NMI Button 2-20
Reset Button 2-20
Power Button 2-20
2-6 Connecting Cables & Optional Devices 2-21
ATX Main PWR (JPW1) & CPU PWR Connectors (JPW2) 2-21
Fan Headers (FAN1~4, FANA) 2-22
Chassis Intrusion (JL1) 2-22
Speaker (JD1) 2-23
Legacy Wake-On-LAN Header (JSTBY) 2-23
Power Supply I²C (JPI²C) 2-24
DOM PWR Connector (JWF1) 2-24
T-SGPIO 1/2 & 3-SGPIO 1/2 Headers 2-25
TPM Header (JTPM1) 2-25
Overheat/Fan Fail LED (JOH1) 2-26
Serial Ports 2-27
Front Accessible Audio Header 2-27
SPDIF IN / SPDIF OUT (JSPDIF_IN/JSPDIF_OUT) 2-28
2-7 Jumper Settings 2-29
Explanation of Jumpers 2-29
LAN Port Enable/Disable (JPL2) 2-29
Clear CMOS (JBT1) 2-30
PCI Slot SMB Enable (JI²C1/JI²C2) 2-30
Watch Dog Reset (JWD1) 2-31
USB Wake-Up (JPUSB1) 2-31
TPM Support Enable (JPT1) 2-32
CF Card Master/Slave (JCF1) 2-32
ME Recovery (JPME1) 2-33
Audio Enable (JPAC1) 2-33
2-8 Onboard Indicators 2-34
LAN Port LEDs 2-34
Onboard Power LED (DP2) 2-34
2-9 SATA and SAS Connections 2-35
SATA/SAS Connections 2-35

Chapter 3 Troubleshooting

3-1 Troubleshooting Procedures 3-1
3-2 Technical Support Procedures 3-3
3-3 Frequently Asked Questions 3-4
3-4 Battery Removal and Installation 3-6
3-5 Returning Merchandise for Service 3-7

Chapter 4 BIOS

4-1 Introduction 4-1
4-2 Main Setup 4-2
4-3 Advanced Setup Configurations 4-4
4-4 Event Logs 4-20
4-5 Security Settings 4-22
4-6 Boot 4-23
4-7 Save & Exit 4-24

Appendix A BIOS Error Beep Codes

A-1 BIOS Error Beep Codes A-1

Appendix B Software Installation Instructions

B-1 Installing Drivers B-1
B-2 Configuring SuperDoctor® III B-2

Appendix C UEFI BIOS Recovery Instructions

An Overview to the UEFI BIOS C-1
How to Recover the UEFI BIOS Image (the Main BIOS Block) C-1
To Recover the Main BIOS Block Using a USB-Attached Device C-1

Chapter 1

Introduction

1-1 Overview

Checklist

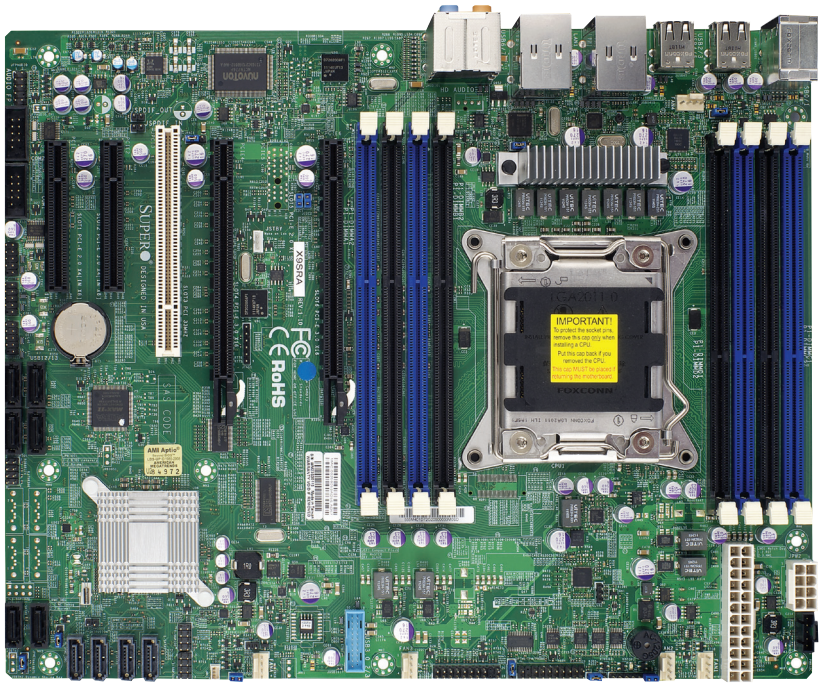
Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have all been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

The following items are included in the retail box:

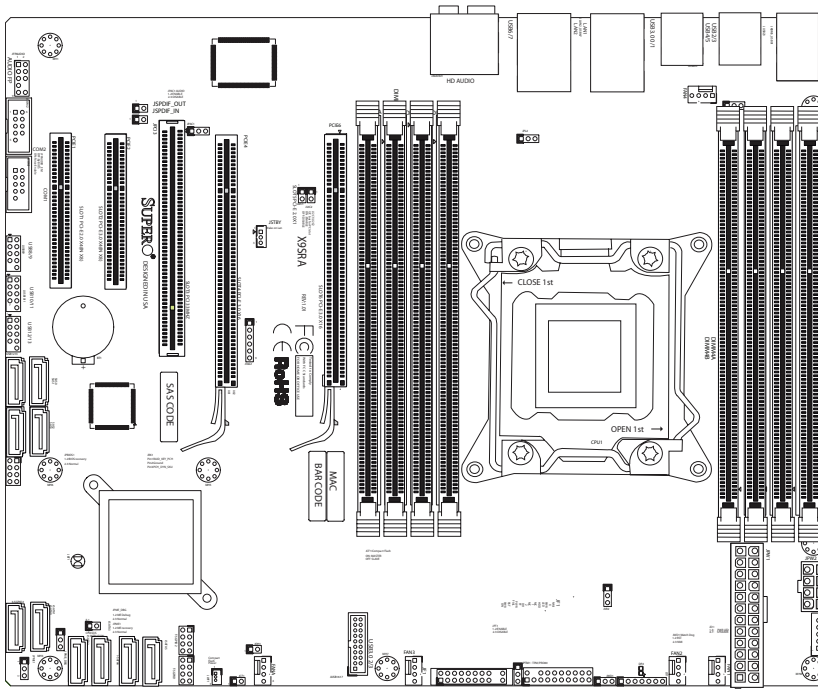
- One (1) Supermicro Mainboard
- Two (2) SATA cables
- One (1) I/O shield
- One (1) Supermicro CD containing drivers and utilities

SUPERMICRO Motherboard Image



Note: All graphics shown in this manual were based upon the latest PCB Revision available at the time of publishing of the manual. The motherboard you've received may or may not look exactly the same as the graphics shown in this manual.

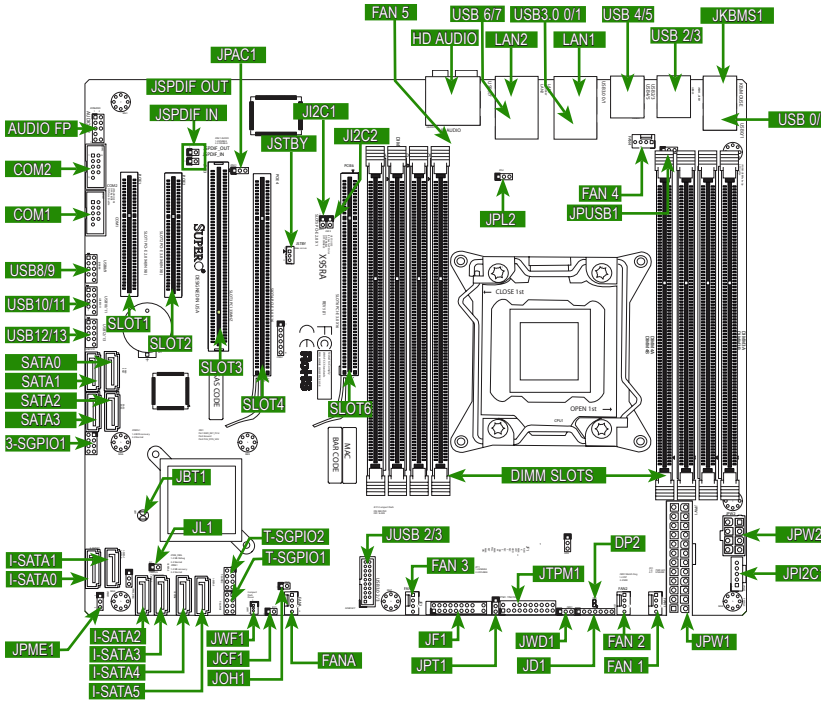
Motherboard Layout



Important Notes to the User

- See Chapter 2 for detailed information on jumpers, I/O ports and JF1 front panel connections.
- "■" indicates the location of "Pin 1".
- Jumpers not indicated are for testing only.

Motherboard Quick Reference



Motherboard Jumpers		
Jumper	Description	Default
JPME1	Intel ME Mode Select	Pins 1-2 (Normal)
JCF1	Compact Flash Card Master/Slave Select	On (Master)
JPT1	TPM Enable	Pins 1-2 (Enabled)
JWD1	Watch Dog Reset	Pins 1-2 (Reset)
JPL2	LAN2 Enable/Disable	Pins 1-2 (Enabled)
JPUSB1	USB Wake-up Enable	Pins 1-2 (Enabled)
JI2C1/JI2C2	SMB to PCI Slots	On (Enabled)
JPAC1	Audio Enable	Pins 1-2 (Enabled)
JBT1	CMOS Clear	See Chapter 2

Motherboard LED Indicators			
LED	**Description**	**Color/State**	**Status**
DP2	Power On LED	Green: Solid On	System is On

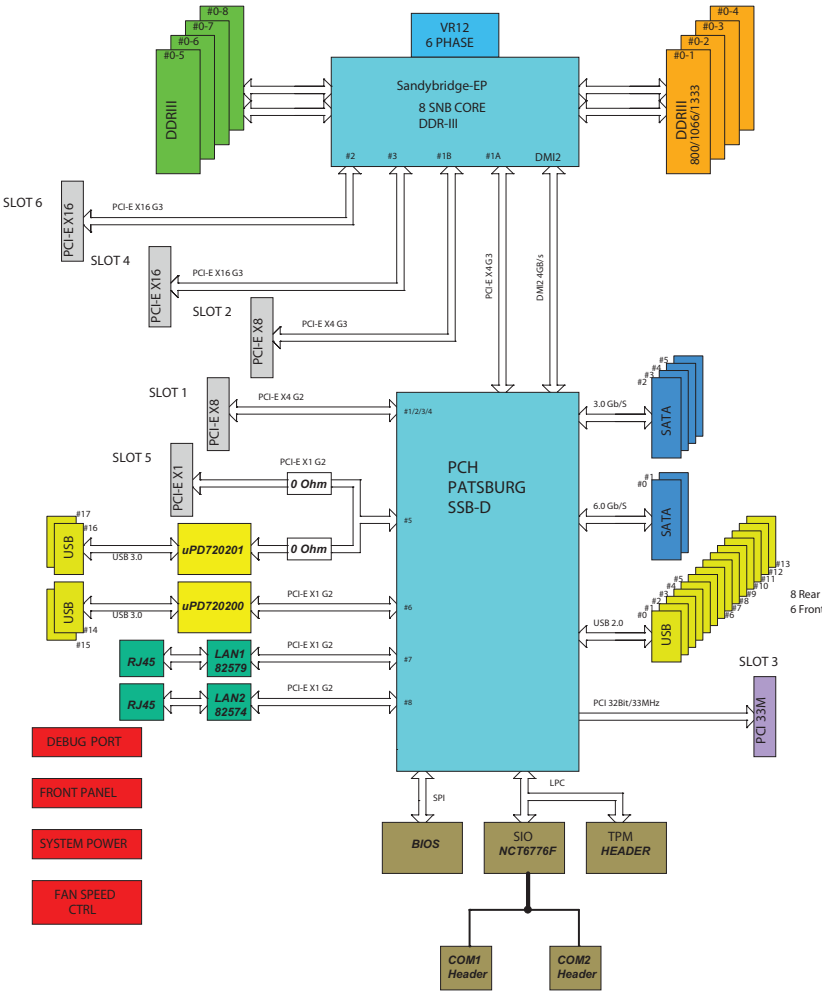
Motherboard Headers/Connectors	
Connector	**Description**
AUDIO FP	Front Panel Audio Header
COM1, COM2	COM1 & COM2 Serial Port Headers
USB 8/9, USB 10/11, USB 12/13	USB 2.0 Headers for front panel access
JUSB2/3 (USB 3.0)	USB 3.0 Header for USB 2/3
USB 0/1, USB 2/3, USB 4/5, USB 6/7	Back Panel USB 2.0 Ports
USB 3.0 0/1	Back Panel USB 3.0 Ports
JKBMS1	Combination PS/2 Keyboard/Mouse Port
LAN1, LAN2	Gb Ethernet LAN Ports (LAN1 & LAN2)
HD Audio	High Definition (HD) Audio output jacks
JSPDIF OUT/IN	SP/DIF Audion In/Out Headers
3-SGPIO1	Serial General Purpose I/O Headers for SAS
SATA0-3	Serial ATA ports (SATA 2.0), 3Gb/s
I-SATA0, I-SATA1	Serial ATA ports (SATA 3.0), 6Gb/s
I-SATA2~5	Serial ATA ports (SATA 2.0), 3Gb/s
JWF1	SATA DOM (Disk On Module) Power Connector
JOH1	Overheat LED/Fan Fail
FAN A, FAN1~FAN4	Internal Fan Headers
JF1	Front Panel Control Header
JTPM1	Trusted Platform Module (TPM) Header
JD1	Power LED / Speaker Header (Pins 4~7: External Speaker)
T-SGPIO1, T-SGPIO2	Serial Link General Purpose I/O Headers (5V Gen1/Gen 2)
JPW1	24-pin Main ATX Power Connector
JPW2	8-pin Secondary Power Connector
JPI2C1	Power Supply SMBus I2C Header
JL1	Chassis Intrusion Header
JSTBY	Legacy Wake On LAN Header
SLOT1	PCI-E 2.0 x4 (in x8 Slot)
SLOT2	PCI-E 3.0 x4 (in x8 Slot)
SLOT3,	PCI 33MHz Slot
SLOT4, SLOT6	PCI-E 3.0 x16 Slots

Motherboard Features

CPU	Single Intel® E5-1600 / E5-2600 Series Processor (LGA 2011-pin, Socket-R)	
Memory	Eight (8) DIMM slots support up to 256GB of DDR3 ECC RDIMM memory or 64GB of DDR3 ECC or non-ECC UDIMM memory, up to 1600MHz.	
	Supports dual-channel memory bus	
	DIMM sizes	
	UDIMM	1GB, 2GB, 4GB, 8GB
	RDIMM	2GB, 4GB, 8GB, 16GB, 32GB
Chipset	Intel C600-A	
Expansion	**PCI Slots**	
	Two (2) PCI-Express 3.0 x16 Slot	
	One (1) PCI-Express 3.0 x4 in x8 Slot	
	One (1) PCI-Express 2.0 x4 in x8 Slot	
	One (1) PCI 33MHz Slot	
Network Connections	**Integrated LAN**	
	One (1) Intel 82579LM and One (1) Intel 82574L Gb LAN	
I/O Devices	**SATA Connections**	
	SATA 2.0 Ports 3 Gb/s	Four (4) RAID 0, 1, 10 (via SCU)
	SATA 2.0 Ports 3 Gb/s	Four (4) RAID 0, 1, 5, 10 (via AHCI)
	SATA 3.0 Ports 6 Gb/s	Two (2) RAID 0, 1, 5, 10 (via AHCI)
	Audio	
	Realtek ALC889 7.1 HD Audio with S/P DIF (In/Out)	
	USB Devices	
	Eight (8) USB 2.0 ports on the rear I/O panel	
	Six (6) USB 2.0 headers for front panel access	
	Two (2) USB 3.0 (5Gb/s) headers for front panel access	
	Two (2) USB 3.0 (5Gb/s) ports on the rear I/O panel	
	Keyboard/Mouse	
	One (1) PS/2 KB/Mouse combo port on the I/O backpanel	
	Serial (COM) Ports	
	Two (2) Fast UART 16550 connections on two headers (COM1 & COM2)	

	Super I/O
	Winbond Super I/O NCT6776F
BIOS	32 Mb SPI AMI BIOS® SM Flash BIOS
	Play and Plug APM 1.2, DMI 2.3, PCI 2.2, ACPI 1.0/2.0, USB Keyboard and SMBIOS 2.3
Power Configuration	ACPI/ACPM Power Management
	Wake On LAN (WOL) Header
	Keyboard Wake-up from Soft-Off
	CPU Fan Auto-off in Sleep Mode
	Power-on mode for AC power recovery
PC Health Monitoring	**CPU & Chassis Monitoring**
	Onboard voltage monitors for CPU core, +1.8V, +3.3V, +5V, +/-12V, +3.3V Stdby, +5V Stdby, VBAT, HT, Memory, Chipset
	CPU 6-phase switching voltage regulator
	CPU/System overheat LED and control
	CPU Thermal Trip support
	CPU & Chassis Environment Monitor
	Fan Control
	Fan status monitoring with firmware 4-pin (Pulse Width Modulation) fan speed control
	Low noise fan speed control
System Management	System resource alert via SuperDoctor® III
	SuperDoctor® III, Watch Dog, NMI, PECI 2.0
	Chassis Intrusion header and detection
CD Utilities	BIOS flash upgrade utility
	Drivers and software for Intel® C204 chipset utilities
Other	ROHS 6/6 (Full Compliance, Lead Free)
	TPM 1.2 on board & Disk on Module Power Connector
	FCC B, EuP Lot 6, WHQL
Dimensions	ATX form factor (12" x 9.6")

Motherboard Block Diagram



System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the Motherboard Features pages for the actual specifications of each motherboard.

1-2 Chipset Overview

The Intel® C600 series is a single chip solution that is designed for dedicated servers and workstations. It supports high-speed SATA and advanced requirements for Intel Xeon platforms.

Intel C600 Chipset Features

- Direct Media Interface (up 5 Gt/s transfer, Full Duplex)
- Intel® Matrix Storage Technology and Intel Rapid Storage Technology
- Intel I/O Virtualization (VT-d) Support
- Intel Trusted Execution Technology Support
- PCI Express 2.0 Interface (up to 5.0 GT/s)
- 8 SATA 2.0 ports, 2 SATA 3.0 ports (up to 6Gb/s)
- Advanced Host Controller Interface (AHCI)

1-3 Special Features

Recovery from AC Power Loss

Basic I/O System (BIOS) provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must press the power switch to turn it back on), or for it to automatically return to a power-on state. See the Advanced BIOS Setup section to change this setting. The default setting is **Last State**.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the board. All have an onboard System Hardware Monitoring chip that supports PC health monitoring. An onboard voltage monitor will scan these onboard voltages continuously: CPU Vcore, NIC Vcore, BMC Vcore, AUX Vcore, Standby ME Vcore, 12V Scale, 1.5V, 3.3V Vcc(V), 3.3VSB, and Battery Voltage. Once a voltage becomes unstable, a warning is given, or an error message is sent to the screen. The user can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware Control

PC health monitoring in the BIOS can check the RPM status of the cooling fans. The onboard CPU and chassis fans are controlled by Thermal Management via BIOS (under the Hardware Monitoring section in the Advanced Setting).

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. Once the thermal sensor detects that the CPU temperature is too high, it will automatically turn on the thermal fans to prevent the CPU from overheating. The onboard chassis thermal circuitry can monitor the overall system temperature and alert the user when the chassis temperature is too high.

Important: To avoid possible system overheating, please be sure to provide adequate airflow to your system.

System Resource Alert

This feature is available when the system is used with SuperDoctor® III in the

Windows OS environment or used with SuperDoctor II in Linux. SuperDoctor is used to notify the user of certain system events. For example, you can also configure SuperDoctor to provide you with warnings when the system temperature, CPU temperatures, voltages and fan speeds go beyond predefined thresholds.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers.

In addition to enabling operating system-directed power management, ACPI also provides a generic system event mechanism for Plug and Play, and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures, while providing a processor architecture-independent implementation that is compatible with Windows XP, Windows Vista and Windows 2008 Operating Systems.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start to blink to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will "wake up", and the LED will automatically stop blinking and remain on.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

This motherboard accommodates 24-pin ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. In addition, the 12V 8-pin power connector located at JPW2 is also required to ensure adequate power supply to the system. Also your power supply must supply 1.5A for the Ethernet ports.

Warning: 1. To prevent damage to the power supply or motherboard, please use a power supply that contains a 24-pin and a 8-pin power connectors. Be sure to connect these connectors to the 24-pin (JPW1) and the 8-pin (JPW2) power connectors on the motherboard. Failure in doing so will void the manufacturer warranty on your power supply and motherboard.

2. To provide adequate power to SATA devices, please connect the SATA DOM PWR connector (JWF1) to the power supply.

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant. (For more information, please refer to the web site at http://www.ssiforum.org/). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Super I/O

The Super I/O supports two high-speed, 16550 compatible serial communication ports (UARTs). Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through an SMI or SCI function pin. It also features auto power management to reduce power consumption.

Chapter 2

Installation

2-1 Static-Sensitive Devices

Electrostatic-Discharge (ESD) can damage electronic components. To avoid damaging your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.
- Use only the correct type of onboard CMOS battery. Do not install the onboard battery upside down to avoid possible explosion.

Unpacking

The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure that the person handling it is static protected.

2-2 Processor and Heatsink Installation

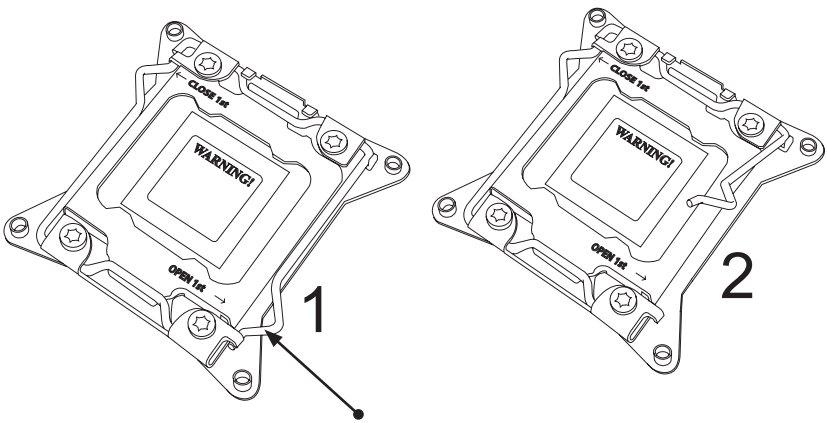
Warning: When handling the processor package, avoid placing direct pressure on the label area.

Notes:

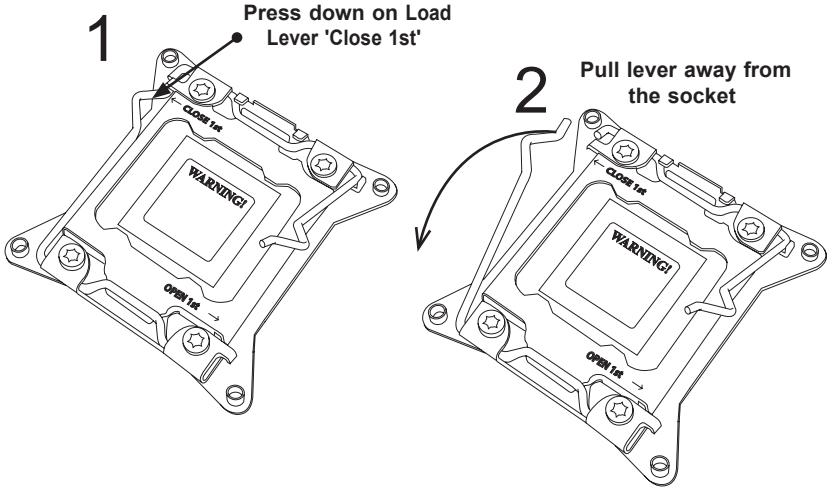
- Always connect the power cord last, and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket before you install the CPU heatsink.
- If you buy a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.
- Make sure to install the system board into the chassis before you install the CPU heatsink.
- When receiving a server board without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.

Opening the LGA2011 Socket

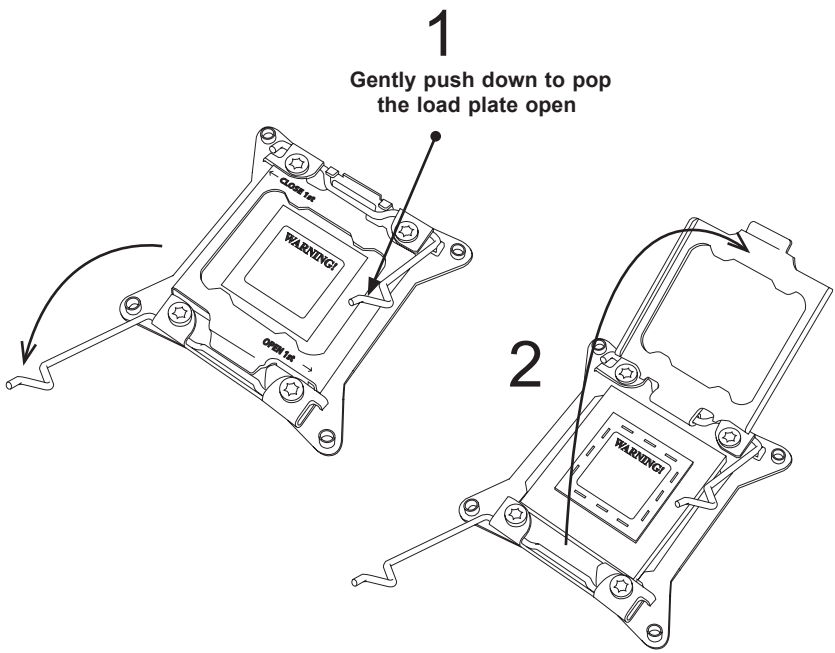
1. There are two load levers on the LGA2011 socket. To open the socket cover, first press and release the load lever labeled 'Open 1st'.



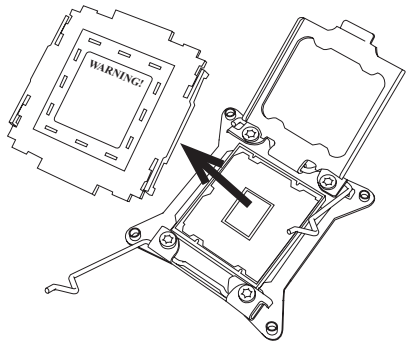
2. Press the second load lever labeled 'Close 1st' to release the load plate which covers the CPU socket from its locking position.



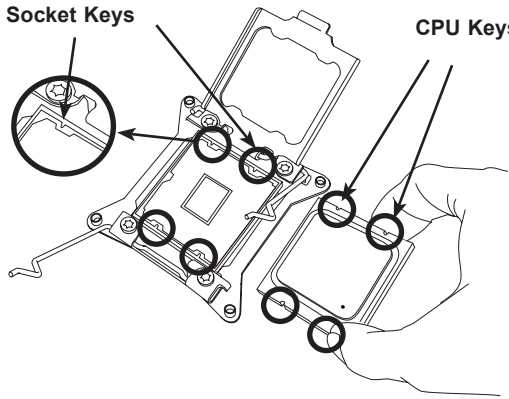
3. With the 'Close 1st' lever fully retracted, gently push down on the 'Open 1st' lever to open the load plate. Lift the load plate to open it completely.



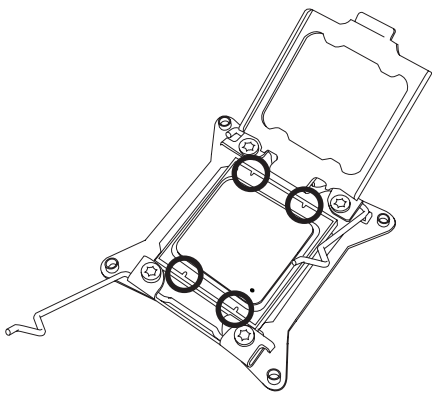
Installing the LGA2011 Processor



1. With the LGA 2011 socket open, remove the 'WARNING' plastic cap using your fingers.



2. Use your thumb and index finger to hold the CPU on its edges. Align the CPU keys (semi-circle cutouts) against the socket keys.



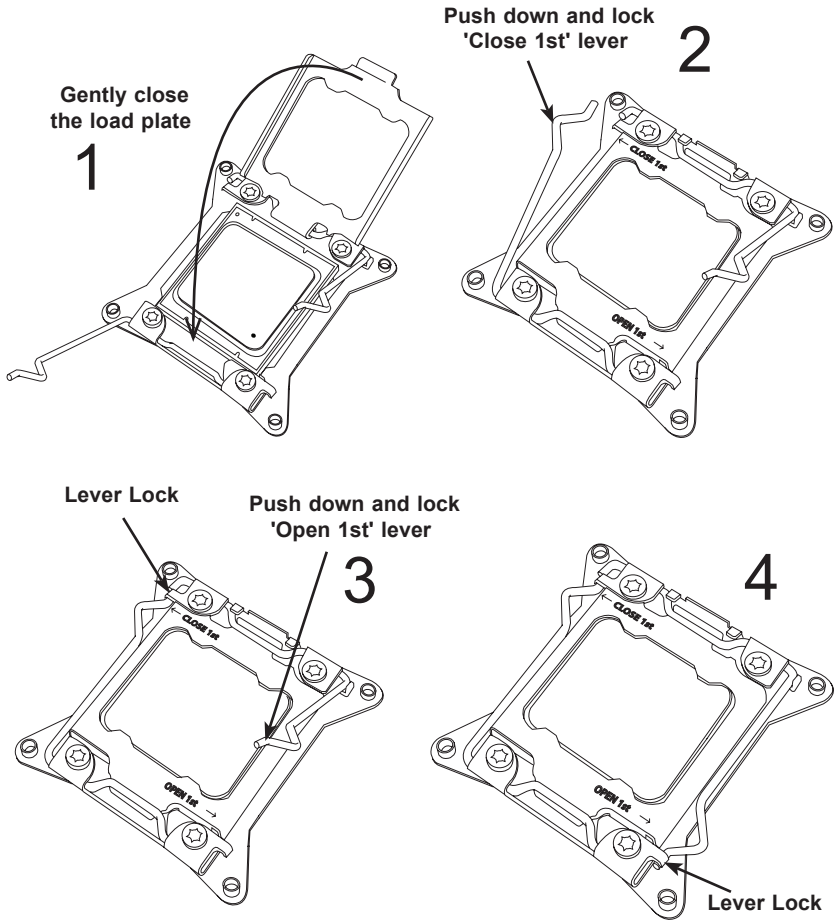
Warning: You can only install the CPU inside the socket in one direction. Make sure that it is properly inserted into the CPU socket before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

3. Once it is aligned, carefully lower the CPU straight down into the socket. (Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically.

4. Do not rub the CPU against the surface or against any pins of the socket to avoid damaging the CPU or the socket.)

5. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.

6. To close and lock the socket, close the load plate with the CPU. Lock the 'Close 1st' lever first, then lock the 'Open 1st' lever second. Use your thumb to gently push the load levers down to the lever locks.



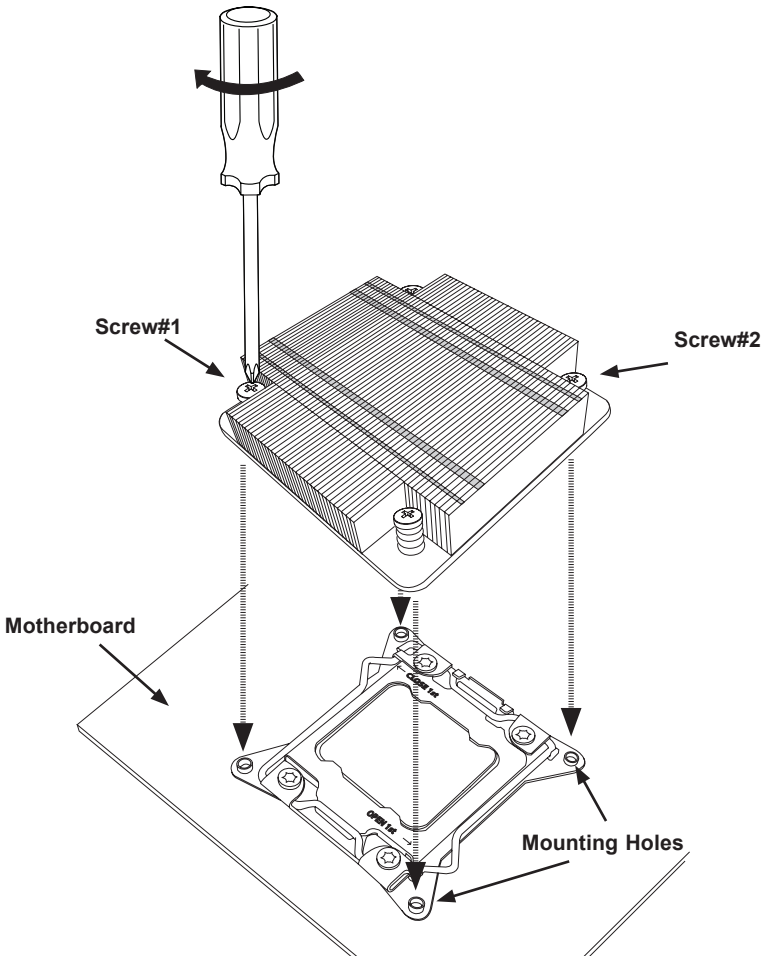
Installing a Passive CPU Heatsink

1. Do not apply any thermal grease to the heatsink or the CPU die -- the required amount has already been applied.

2. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the Motherboard's and the Heatsink Bracket underneath.

3. Screw in two diagonal screws (i.e., the #1 and the #2 screws) until just snug (-do not over-tighten the screws to avoid possible damage to the CPU.)

4. Finish the installation by fully tightening all four screws.



Removing the Heatsink

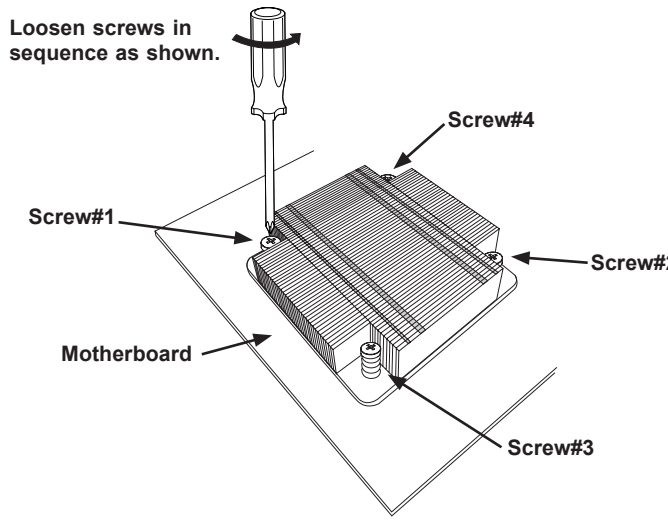
Warning: We do not recommend that the CPU or the heatsink be removed. However, if you do need to uninstall the heatsink, please follow the instructions below to uninstall the heatsink to prevent damage done to the CPU or the CPU socket.

1. Unscrew the heatsink screws from the motherboard in the sequence as shown in the illustration below.

2. Gently wriggle the heatsink to loosen it from the CPU. (Do not use excessive force when wriggling the heatsink!!)

3. Once the CPU is loosened, remove the CPU from the CPU socket.

4. Clean the surface of the CPU and the heatsink, removing the used thermal grease. Reapply the proper amount of thermal grease on the surface before re-installing the CPU and the heatsink.



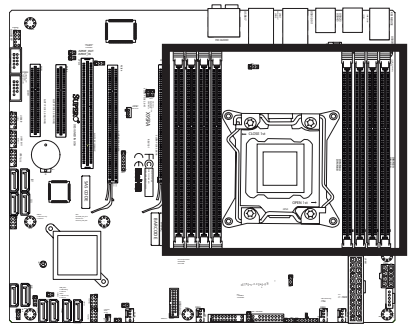
2-3 Installing DDR3 Memory

Note: Check the Supermicro website for recommended memory modules.

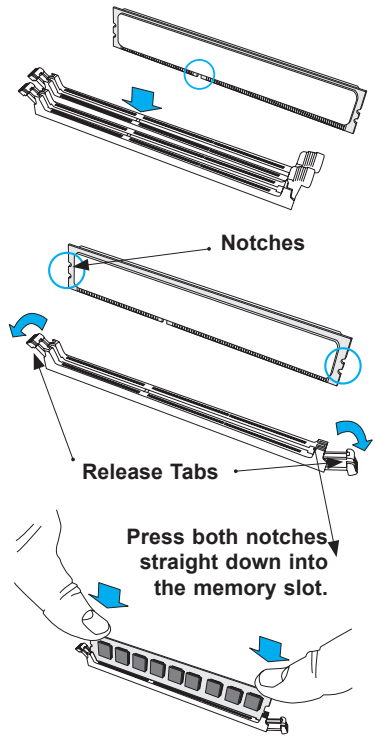
CAUTION

STOP Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

DIMM Installation



1. Insert the desired number of DIMMs into the memory slots, starting with DIMM1A, DIMM(see the next page for the location). For best performance, please use the memory modules of the same type and speed in the same bank.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.
4. Align the notches on both ends of the module against the receptive points on the ends of the slot.
5. Use two thumbs together to press the notches on both ends of the module straight down into the slot until the module snaps into place.
6. Press the release tabs to the lock positions to secure the DIMM module into the slot.

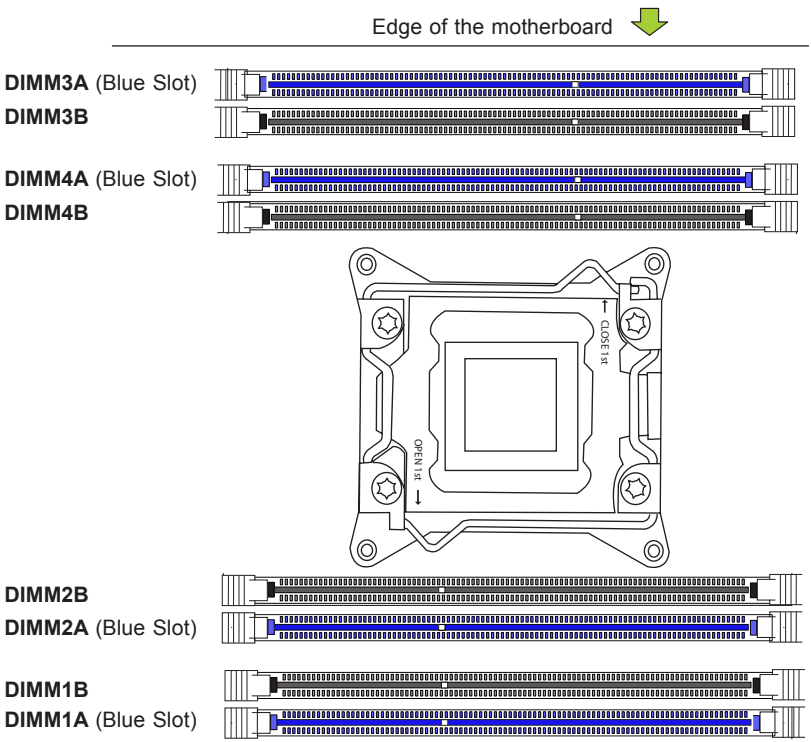


Removing Memory Modules

Reverse the steps above to remove the DIMM modules from the motherboard.

Memory Support

The X9SRA motherboard series supports up to 256GB of 800/1066/1333/1600 MHz ECC/Non-ECC DDR3 DIMMs in eight (8) memory slots (UDIMM/RDIMM). Populating these DIMM modules with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance. Please refer to the table below:



Memory Population Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMM1A, DIMM2A, DIMM3A, DIMM4A then DIMM1B, DIMM2B, DIMM3B, DIMM4B.

- Always use DDR3 DIMM modules of the same size, type and speed.
- Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.
- The motherboard will support odd-numbered modules installed (1 ,3 ,5 ,or 7 modules). However, for best memory performance, install DIMM modules in pairs.

Recommended Population (Balanced)								
DIMM1A	DIMM2A	DIMM3A	DIMM4A	DIMM1B	DIMM2B	DIMM3B	DIMM4B	Total System Memory
2GB	2GB							4GB
2GB	2GB	2GB	2GB					8GB
2GB	2GB	2GB	2GB	2GB	2GB			12GB
2GB	2GB	2GB	2GB	2GB	2GB	2GB	2GB	16GB
4GB	4GB							8GB
4GB	4GB	4GB	4GB					16GB
4GB	4GB	4GB	4GB	4GB	4GB			24GB
4GB	4GB	4GB	4GB	4GB	4GB	4GB	4GB	32GB
8GB	8GB							16GB
8GB	8GB	8GB	8GB					32GB
8GB	8GB	8GB	8GB	8GB	8GB			48GB
8GB	8GB	8GB	8GB	8GB	8GB	8GB	8GB	64GB
16GB	16GB							32GB
16GB	16GB	16GB	16GB					64GB
16GB	16GB	16GB	16GB	16GB	16GB			96GB
16GB	16GB	16GB	16GB	16GB	16GB	16GB	16GB	128GB
32GB	32GB							64GB
32GB	32GB	32GB	32GB					128GB
32GB	32GB	32GB	32GB	32GB	32GB			192GB
32GB	32GB	32GB	32GB	32GB	32GB	32GB	32GB	256GB

Note: Up to 256GB of memory are supported using ECC QR (Quad Rank or 4-Rank) registered DIMM technology at 1600/1333/1066/800 MHz. Up to 64GB of memory are supported using non-ECC UDIMMs.

2-4 Motherboard Installation

All motherboards have standard mounting holes to fit different types of chassis. Make sure that the locations of all the mounting holes for both motherboard and chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure that the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

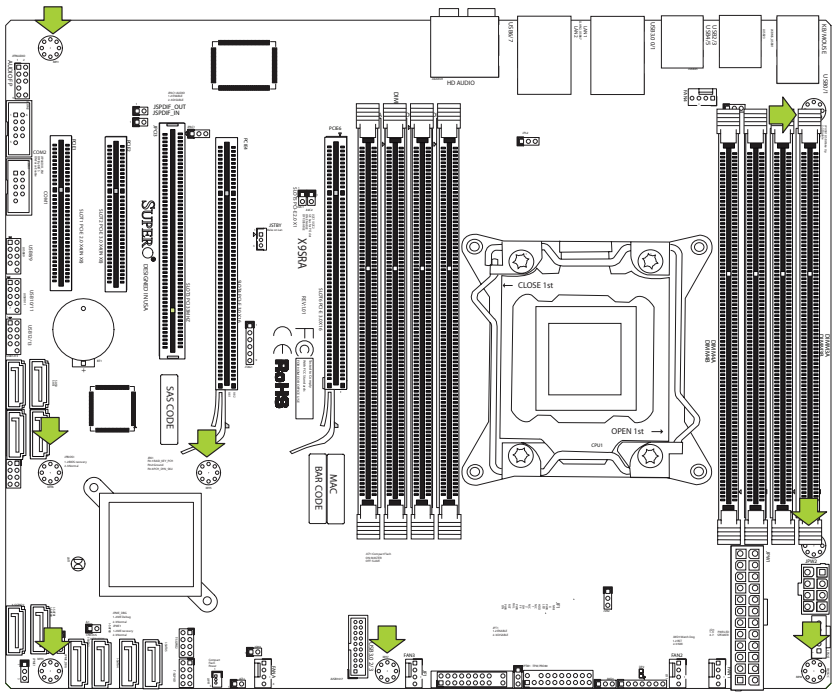
Tools Needed

Philips Screwdriver

Philips Screws

Standoffs

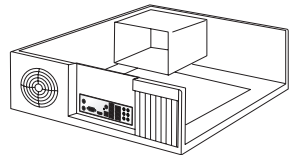
Location of Mounting Holes



Caution: 1) To prevent damage to the motherboard and its components, please do not use a force greater than 8 lb/inch on each mounting screw during motherboard installation. 2) Some components are very close to the mounting holes. Please take precautionary measures to avoid damaging these components when installing the motherboard to the chassis.

Installing the Motherboard

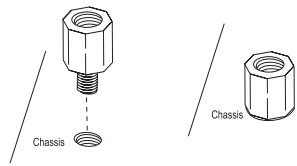
1. Install the I/O shield into the chassis.



2. Locate the mounting holes on the motherboard.

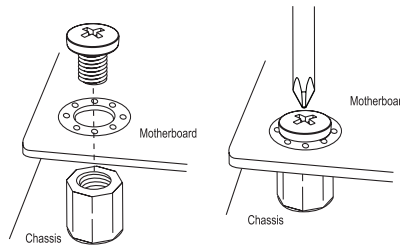
3. Locate the matching mounting holes on the chassis. Align the mounting holes on the motherboard against the mounting holes on the chassis.

4. Install standoffs in the chassis as needed.



5. Install the motherboard into the chassis carefully to avoid damaging motherboard components.

6. Using the Philips screwdriver, insert a Pan head #6 screw into a mounting hole on the motherboard and its matching mounting hole on the chassis.



7. Repeat Step 5 to insert #6 screws into all mounting holes.

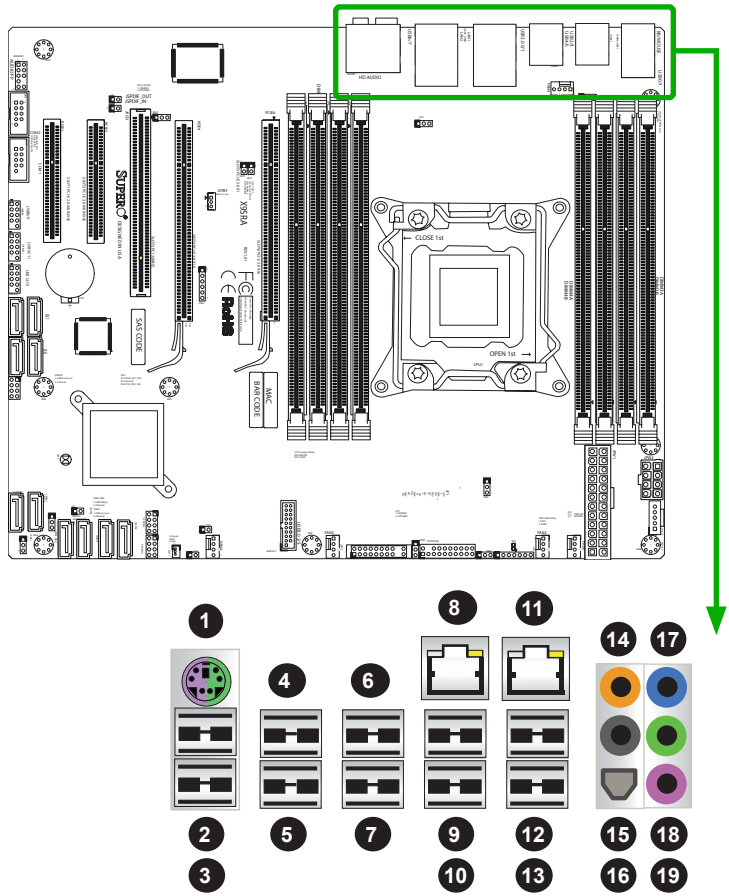
8. Make sure that the motherboard is securely placed in the chassis.

Note: Images displayed are for illustration only. Your chassis or components might look different from those shown in this manual.

2-5 Connectors/IO Ports

The I/O ports are color coded in conformance with the industry standards. See the figure below for the colors and locations of the various I/O ports.

Motherboard I/O Backpanel



Motherboard I/O Backpanel		
1. Keyboard/Mouse	7. USB 2.0 Port 5	13. USB 2.0 Port 7
2. USB 2.0 Port 0	8. LAN 1 Port	14. Center/LFE Out
3. USB 2.0 Port 1	9. USB 3.0 Port 0	15. Surround Out
4. USB 2.0 Port 2	10. USB 3.0 Port 1	16. S/P DIF Out
5. USB 2.0 Port 3	11. LAN 2 Port	17. Line In
6. USB 2.0 Port 4	12. USB 2.0 Port 6	18. Line Out
		19. Mic In

ATX PS/2 Keyboard/Mouse Ports

The ATX PS/2 keyboard and PS/2 mouse are located next to the Back Panel USB Ports 13/10 on the motherboard. See the table at right for pin definitions.

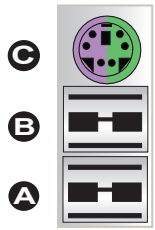
PS/2 Keyboard/Mouse Pin Definitions

PS2 Keyboard		PS2 Mouse	
Pin#	Definition	Pin#	Definition
1	KB Data	1	Mouse Data
2	No Connection	2	No Connection
3	Ground	3	Ground
4	Mouse/KB VCC (+5V)	4	Mouse/KB VCC (+5V)
5	KB Clock	5	Mouse Clock
6	No Connection	6	No Connection
VCC: with 1.5A PTC (current limit)			

Note:

This motherboard offers three Keyboard/Mouse connection options as shown in the graphic below.

- **A.** Plug in a Y cable that connects to a KB cable and a mouse cable on other end to USB Port 8.
- **B.** Plug in a Y cable that connects to a KB cable and a mouse cable on other end to USB Port 9.
- **C.** Connect a keyboard cable or a mouse cable to the PS2 KB/Mouse port.

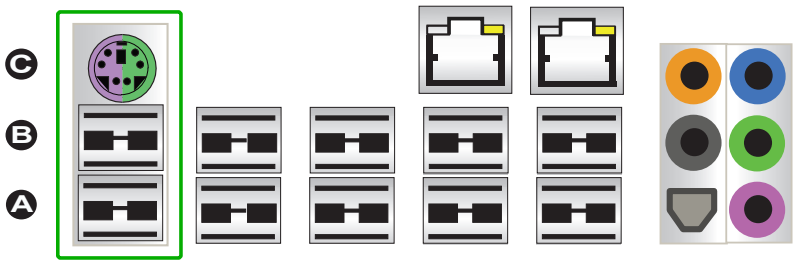


Keyboard/Mouse
(For a keyboard cable or Mouse cable) (optional)

Back Panel USB (2.0) Port #0
(For a Y cable that connects to a KB cable and a Mouse Cable) (optional)

Back Panel USB (2.0) Port #1
(For a Y cable that connects to a KB cable and a Mouse Cable) (optional)

A. Backpanel USB 2.0 #1
B. Backpanel USB 2.0 #0
C. PS2 Keyboard/Mouse



Universal Serial Bus (USB)

Eight (8) Universal Serial Bus 2.0 ports are located on the I/O back panel, in addition to two USB 3.0 Ports that are located below LAN1. There are also six (6) USB 2.0 ports on three headers, and two (2) USB 3.0 ports on one header that can be used to provide front chassis access using USB cables (not included). See the tables below for pin definitions.

Front Panel USB (2.0) Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	+5V	2	+5V
3	USB_PN2	4	USB_PN3
5	USB_PP2	6	USB_PP3
7	Ground	8	Ground
9	Key	10	Ground

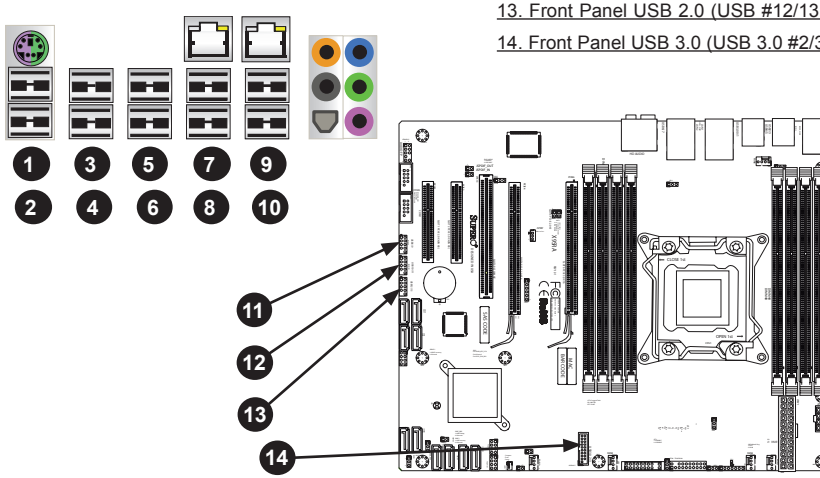
Back Panel USB (2.0) Pin Definitions

Pin#	Definition	Pin#	Definition
1	+5V	5	+5V
2	USB_PN1	6	USB_PN0
3	USB_PP1	7	USB_PP0
4	Ground	8	Ground

Back Panel USB (3.0) Pin Definitions

Pin#	Pin#	Signal Name	Description
1	10	VBUS	Power
2	11	D-	USB 2.0 Differential Pair
3	12	D+	
4	13	Ground	Ground of PWR Return
5	14	StdA_SSRX-	SuperSpeed Receiver
6	15	StdA_SSRX+	Differential Pair
7	16	GND_DRAIN	Ground for Signal Return
8	17	StdA_SSTX-	SuperSpeed Transmitter
9	18	StdA_SSTX+	Differential Pair

1. Back Panel USB 2.0 (USB #0)
2. Back Panel USB 2.0 (USB #1)
3. Back Panel USB 2.0 (USB #2)
4. Back Panel USB 2.0 (USB #3)
5. Back Panel USB 2.0 (USB #4)
6. Back Panel USB 2.0 (USB #5)
7. Back Panel USB 3.0 (USB 3.0 #0)
8. Back Panel USB 3.0 (USB 3.0 #1)
9. Back Panel USB 2.0 (USB #6)
10. Back Panel USB 2.0 (USB #7)
11. Front Panel USB 2.0 (USB #8/9)
12. Front Panel USB 2.0 (USB #10/11)
13. Front Panel USB 2.0 (USB #12/13)
14. Front Panel USB 3.0 (USB 3.0 #2/3)



Ethernet Ports

Two Ethernet ports (LAN1/LAN2) are located next to the VGA port on the I/O Backpanel. These ports provide connectivity with speeds up to 1Gb/s. Please see the table on the left for the pin definitions.

LAN Ports Pin Definition

Pin#	Definition		
1	TD0-	10	SGND
2	TD0+	11	P3V3SB
3	TD1-	12	Act LED
4	TD1+	13	Link 100 LED (Green, +3V3SB)
5	TD2-	14	Link 1000 LED (Yellow, +3V3SB)
6	TD2+	15	Ground
7	TD3-	16	Ground
8	TD3+	17	Ground
9	P2V5SB	88	Ground

(NC: No Connection)

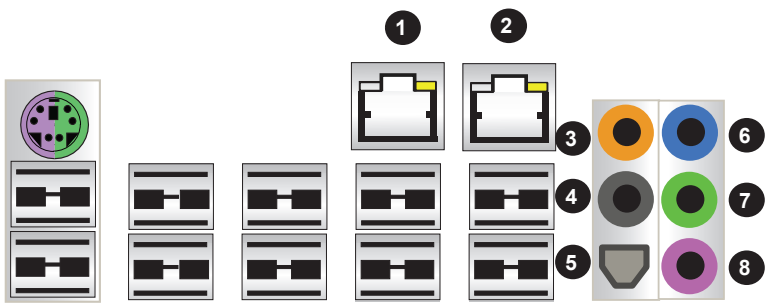
(Back_Panel) High Definition Audio (HD Audio)

This motherboard features a 7.1+2 Channel High Definition Audio (HDA) codec that provides 10 DAC channels. The HD Audio connections simultaneously supports multiple-streaming 7.1 sound playback with 2 channels of independent stereo output through the front panel stereo out for front, rear, center and subwoofer speakers. Use the Advanced software included in the CD-ROM with your motherboard to enable this function.

(BP) HD Audio

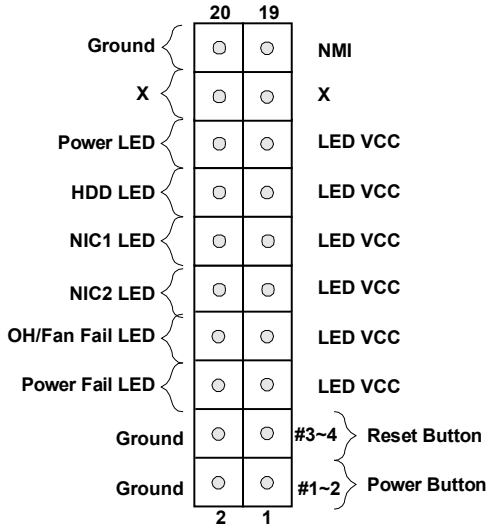
Conn#	Signal
1	S/P DIF Out
2	Surround Out
3	CEN/LFE Out
4	Mic In
5	Line Out
6	Line In

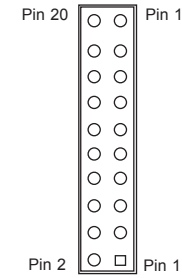
1. LAN1
2. LAN2
3. Center/LFE Out
4. Surround Out
5. S/P DIF Out
6. Line In
7. Line Out
8. Mic In



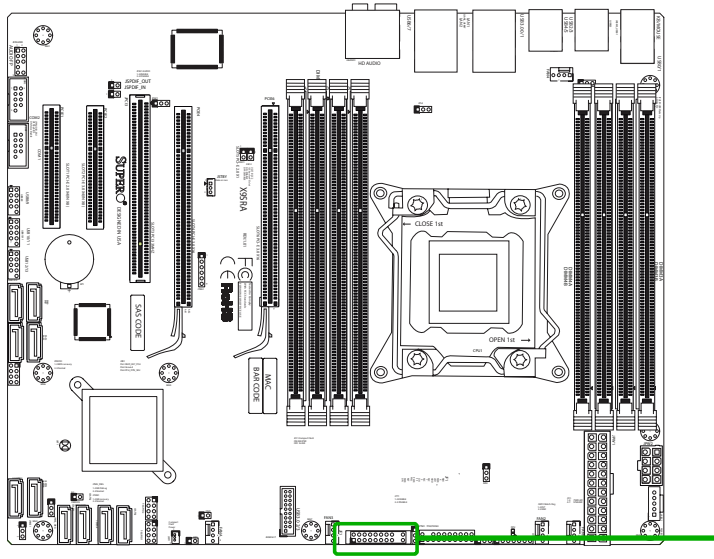
Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See the figure below for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.





JF1 Header Pins



Front Control Panel Pin Definitions

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	LED VCC
16	Ground

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable here to indicate the status of HDD-related activities, including IDE, SATA activities. See the table on the right for pin definitions.

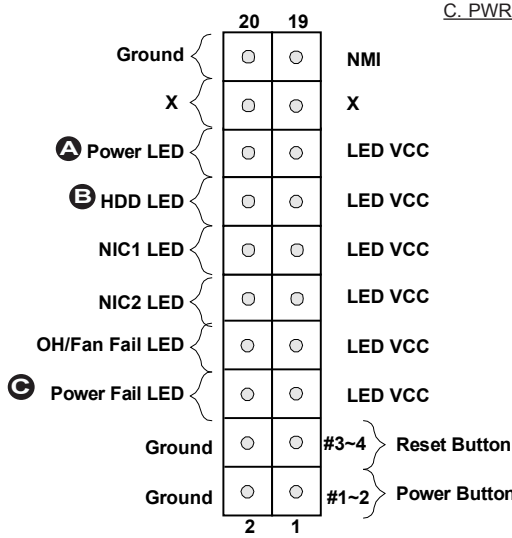
HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	LED VCC
14	HD Active

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table on the right for pin definitions.

PWR Fail LED Pin Definitions (JF1)	
Pin#	Definition
5	LED VCC
6	Ground

A. PWR LED
B. HDD LED
C. PWR Fail LED



NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on Pins 9 and 10. NIC1 LED and NIC2 LED are 2-pin NIC LED headers. Attach NIC LED cables to NIC1 and NIC2 LED indicators to display network activities. Refer to the table on the right for pin definitions.

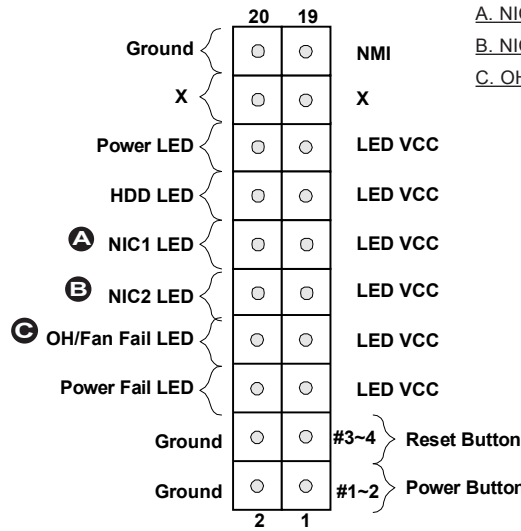
LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	LED VCC
10/12	Ground

Overheat (OH)/Fan Fail

Connect an LED cable to the OH/Fan Fail connections on pins 7 and 8 of JF1 to display signals or to provide advanced warnings for chassis overheat/fan failure. Refer to the table on the right for pin definitions.

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	Definition
7	LED VCC
8	OH/Fan Fail LED

OH/Fan Fail Indicator Status	
State	Definition
Off	Normal
On	Overheat
Flash-ing	Fan Fail



A. NIC1 LED
B. NIC2 LED
C. OH/Fan Fail / UID LED

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

NMI Button Pin Definitions (JF1)	
Pin#	Definition
19	Control
20	Ground

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case to reset the system. Refer to the table on the right for pin definitions.

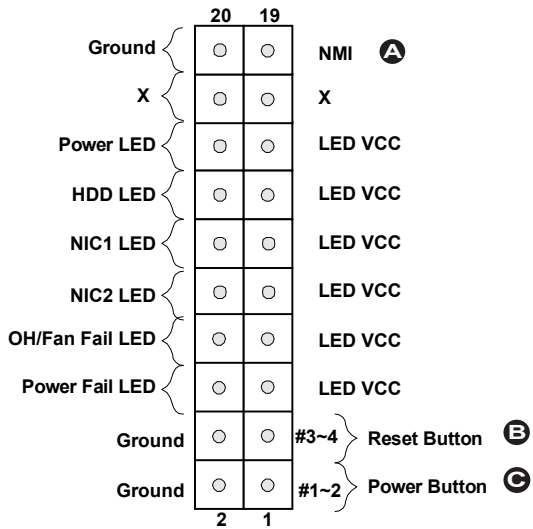
Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

Power Button

The Power Button connection is located on pins1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS - see Chapter 4). To turn off the power in the suspend mode, press the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	+3V Standby

A. NMI Button
B. Reset Button
C. PWR Button



2-6 Connecting Cables & Optional Devices

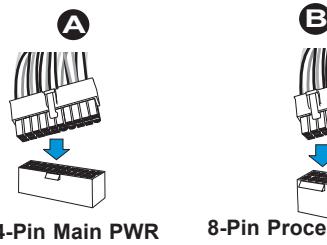
This section provides brief descriptions and pin-out definitions for onboard headers and connectors. Be sure to use the correct cable for each header or connector.

ATX Main PWR (JPW1) & CPU PWR Connectors (JPW2)

The 24-pin main power connector (JPW1) is used to provide power to the motherboard. The 8-pin CPU PWR connector (JPW2) is also required for the processor. These power connectors meet the SSI EPS 12V specification. See the table on the right for pin definitions.

ATX Power 24-pin Connector Pin Definitions (JPW1)

Pin#	Definition	Pin #	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V



24-Pin Main PWR **8-Pin Processor PWR**

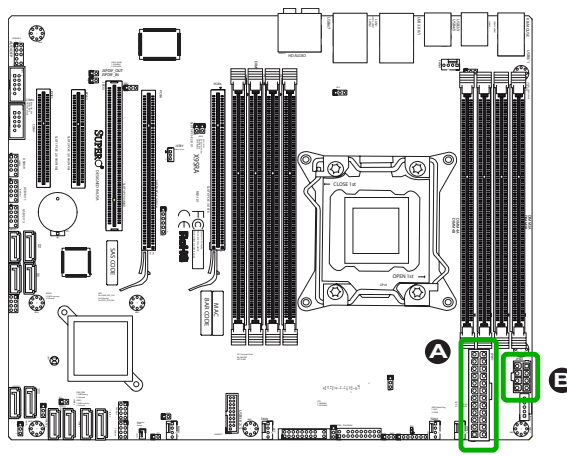
A. 24-Pin ATX Main PWR

B. 8-Pin Processor PWR

12V 8-pin Power Connector Pin Definitions

Pins	Definition
1 through 4	Ground
5 through 8	+12V

(Required)



Fan Headers (FAN1~4, FANA)

The X9SRA motherboard series has five fan headers (Fan 1~Fan 4 and Fan A). These fans are 4-pin fan headers. Pins 1-3 of these fan headers are backward compatible with the traditional 3-pin fans. However, the fan speed control setting in the BIOS Hardware Monitoring section will only work with 4-pin fans. This allows the BIOS to automatically set fan speeds based on the system temperature. Refer to the table on the right for pin definitions and fan usage.

Note: We recommend that 4-pin fans are used on the motherboard.

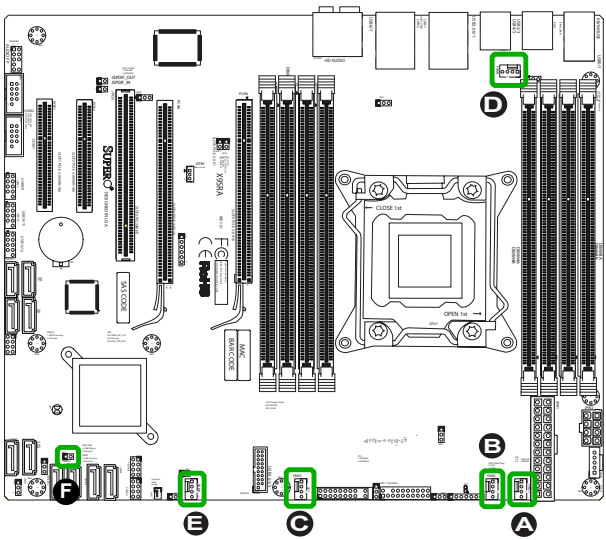
Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer
4	PWM_Control

Fan Usage	
FAN#	Use for
1~4	System/CPU
A	I/O Cards

Chassis Intrusion (JL1)

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened.

Chassis Intrusion Pin Definitions (JL1)	
Pin#	Definition
1	Intrusion Input
2	Ground



A. Fan 1
B. Fan 2
C. Fan 3
D. Fan 4
E. Fan A
F. Chassis Intrusion

Speaker (JD1)

On the JD1 header, pins 3~4 are used for the internal speaker. Close pins 3~4 with a jumper or cap to use the onboard speaker. If you wish to use an external speaker, attach the external speaker's cable to Pins 1~4. See the table on the right for pin definitions.

Speaker Connector Pin Definitions	
Pin Setting	Definition
Pins 3~4	Internal Speaker
Pins1~4	External Speaker

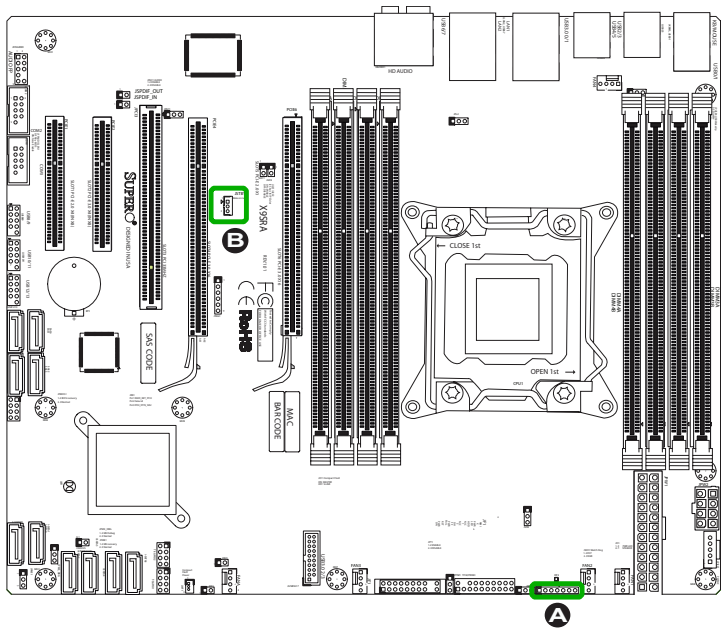
Legacy Wake-On-LAN Header (JSTBY)

The onboard LANs (LAN1 and LAN2) do not need WOL header to support its Wake-On-LAN function. We preserved the legacy WOL header to provide convenience for some embedded customers who need internal power source from the board. See the table on the right for pin definitions.

Wake-On-LAN Pin Definitions	
Pin#	Definition
1	+5V Standby
2	Ground
3	Wake-up

A. Internal Buzzer

B. Wake On LAN



Power Supply I²C (JPI²C)

The Power Supply I²C Connector, located at JPI²C, monitors the status of the power supply, fan and system temperature. See the table on the right for pin definitions.

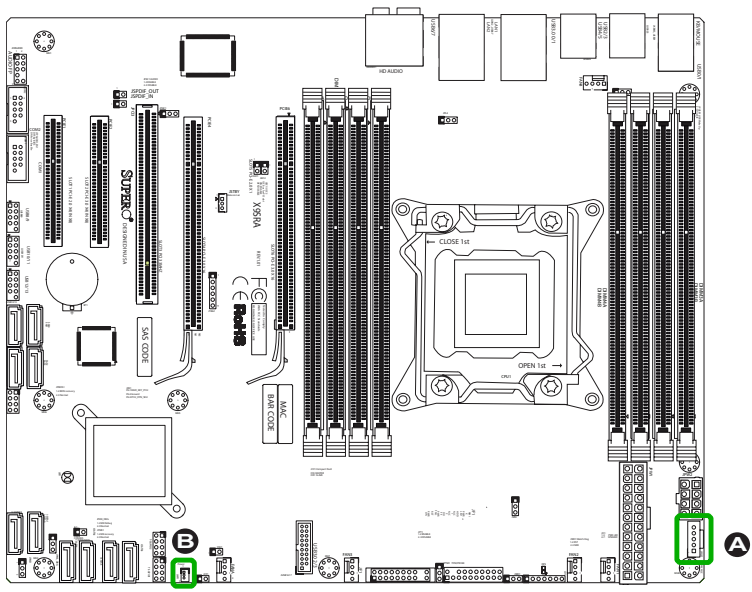
PWR Supply I²C Pin Definitions	
Pin#	Definition
1	Clock
2	Data
3	PWR Fail
4	Ground
5	3.3V

DOM PWR Connector (JWF1)

The Disk-On-Module (DOM) power connector, located at JWF1, provides 5V (Gen1/Gen) power to a solid-state DOM storage device connected to one of the SATA ports. See the table on the right for pin definitions.

DOM PWR Pin Definitions	
Pin#	Definition
1	5V
2	Ground
3	Ground

A. Power Supply I²C
B. DOM Power



T-SGPIO 1/2 & 3-SGPIO 1/2 Headers

Two T-SGPIO (Serial-Link General Purpose Input/Output) headers are located next to the I-SATA Ports on the motherboard. Additionally, two 3-SGPIO ports (for SAS) are also located next to USB 8/9 . These headers are used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions. Refer to the board layout below for the locations of the headers.

Serial_Link-SGPIO Pin Definitions

Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

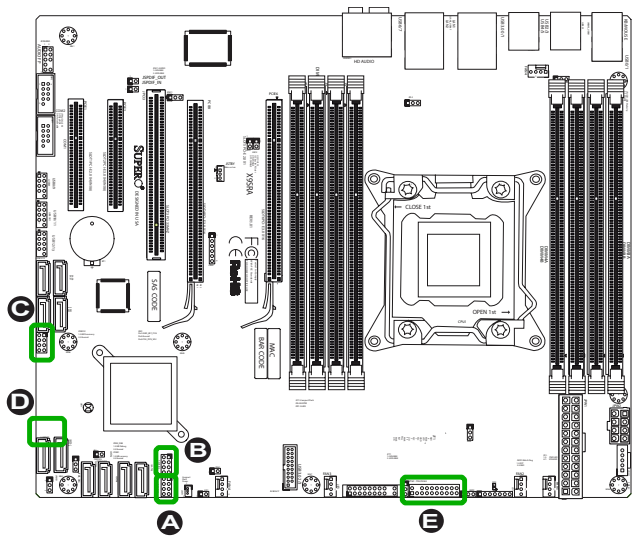
NC: No Connections

TPM Header (JTPM1)

This header is used to connect a Trusted Platform Module (TPM), which is available from a third-party vendor. A TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. See the table on the right for pin definitions.

Trusted Platform Module Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME	4	No Pin
5	LRESET	6	VCC5
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	RSV0	14	RSV1
15	SB3V	16	SERIRQ
17	GND	18	CLKRUN
19	LPCPD	20	RSV2



A. T-SGPIO 1

B. T-SGPIO 2

C. 3-SGPIO 1

D. 3-SGPIO 2

E. TPM Header

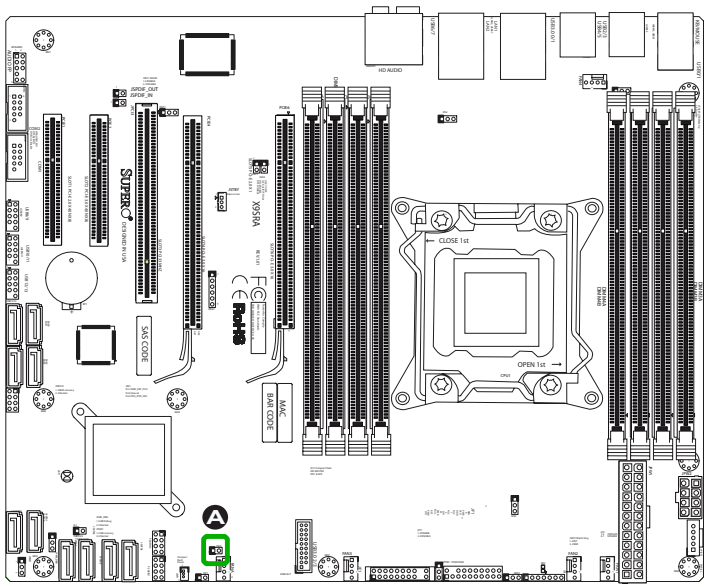
Overheat/Fan Fail LED (JOH1)

The JOH1 header is used to connect an LED to provide warnings of chassis overheat. This LED will also blink to indicate a fan failure. Refer to the table on right for pin definitions.

Overheat LED Pin Definitions	
Pin#	Definition
1	5vDC
2	OH Active

OH/Fan Fail LED Pin Definitions	
State	Message
Solid	Overheat
Blinking	Fan Fail

A. Overheat/Fan Fail LED



Serial Ports

Two COM headers (COM1 & COM2) are provided on the motherboard. The COM1 and COM2 headers are located next to the expansion slots to provide onboard serial connection support. See the table on the right for pin definitions.

Serial Ports-COM1/COM2 Pin Definitions

Pin #	Definition	Pin #	Definition
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	Ground	10	N/A

Front Accessible Audio Header

A 10-pin Audio header is located on the motherboard at AUDIO FP. This header allows you to connect the chassis' front panel audio ports to the motherboard. See the table on the right for pin definitions

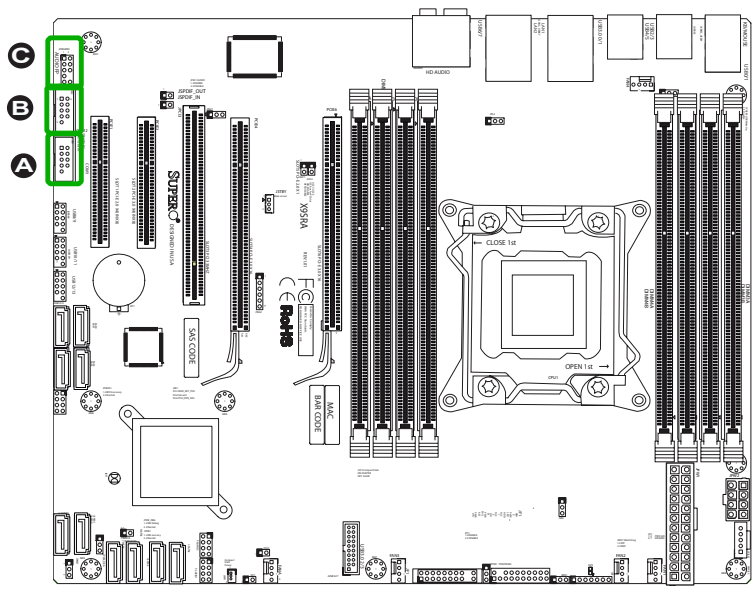
10-in Audio Pin Definitions

Pin#	Signal
1	Microphone_Left
2	Audio_Ground
3	Microphone_Right
4	Audio_Detect
5	Line_2_Right
6	Ground
7	Jack_Detect
8	Key
9	Line_2_Left
10	Ground

A. COM1

B. COM2

C. Audio Header



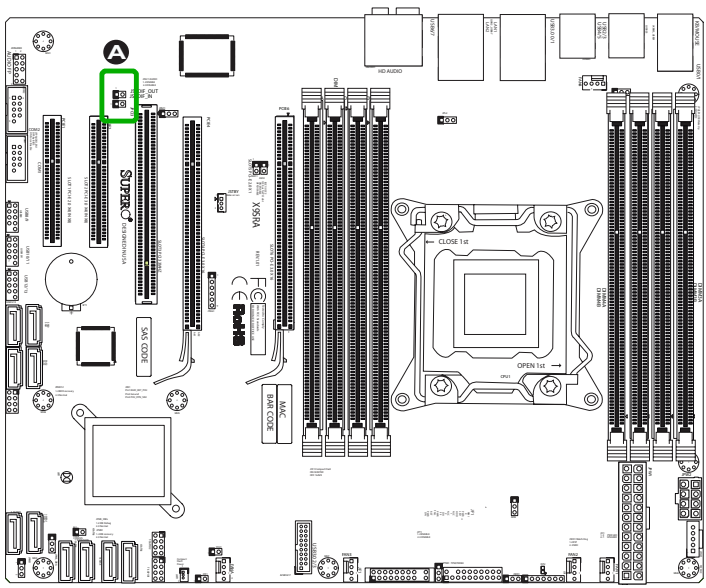
SPDIF IN / SPDIF OUT (JSPDIF_IN/ JSPDIF_OUT)

The SPDIF In (JSPDIF_In) and SPDIF Out (JSPDIF_Out) are used for input and output of S/P DIF digital audio. You will also need the appropriate cables to use these features.

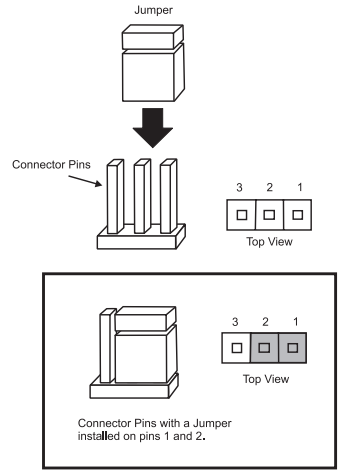
SPDIF_Out Pin Definitions	
Pin#	Definition
1	S/PDIF_Out
2	Ground

SPDIF_In Pin Definitions	
Pin#	Definition
1	S/PDIF_In
2	Ground

A. SPDIF IN / SPDIF OUT



2-7 Jumper Settings



Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board.

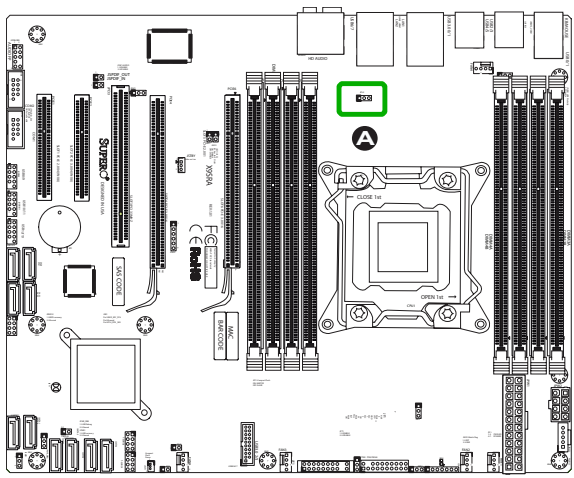
Note: On two-pin jumpers, "Closed" means the jumper is on, and "Open" means the jumper is off the pins.

LAN Port Enable/Disable (JPL2)

Jumper JPL2 enables or disables LAN Port 2 on the motherboard. See the table on the right for jumper settings. The default setting is pins 1-2 (Enabled).

GLAN Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled

A. LAN Port 2 Enable



Clear CMOS (JBT1)

JBT1 is used to clear CMOS. Instead of pins, this "jumper" consists of contact pads to prevent accidental clearing of CMOS. To clear CMOS, use a metal object such as a small screwdriver to touch both pads at the same time to short the connection. Always remove the AC power cord from the system before clearing CMOS.

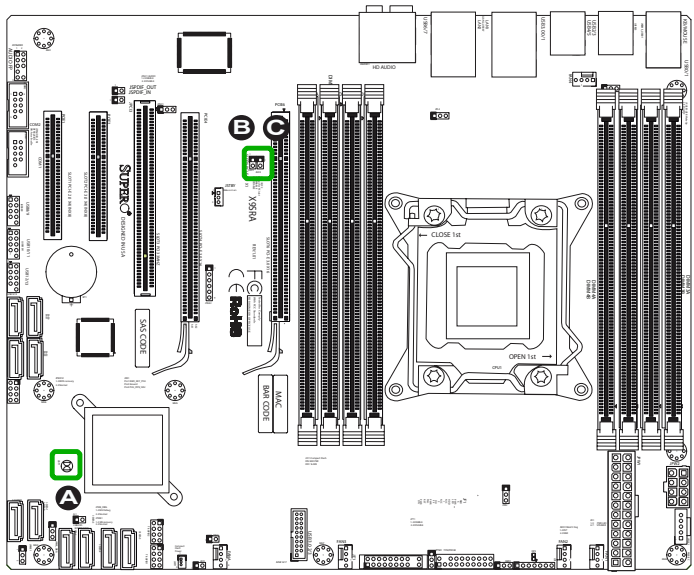
Important: For an ATX power supply, you must completely shut down the system, remove the AC power cord and then short JBT1 to clear CMOS.

PCI Slot SMB Enable (JI²C1/JI²C2)

Use Jumpers I²C1/I²C2 to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. See the table on the right for jumper settings.

PCI Slot SMB Enable Jumper Settings	
Jumper Setting	Definition
Short (Default)	Enabled
Open	Disabled

A. Clear CMOS
B. JI²C1
C. JI²C2



Watch Dog Reset (JWD1)

Watch Dog (JWD1) is a system monitor that can reboot the system when a software application hangs. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. See the table on the right for jumper settings. Watch Dog must also be enabled in the BIOS.

Watch Dog Jumper Settings	
Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled

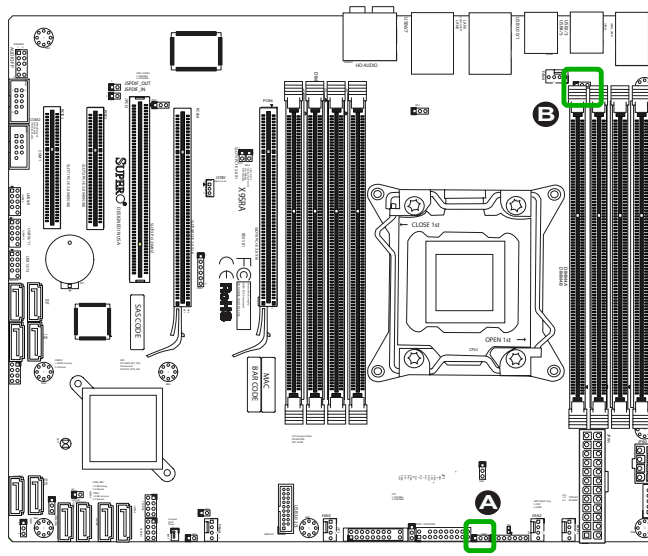
USB Wake-Up (JPUSB1)

Use the jumper JPUSB1 to "wake-up" your system by pressing a key on a USB keyboard or clicking the USB mouse connected to the backpanel USB Ports 0/1. JPUSB1 is used together with a USB Wake-Up feature in the BIOS. Enable this jumper and the USB support in the BIOS to wake up your system via USB devices.

JPUSB1 (Backplane USB 0/1 Wake-up Enable)	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

Note: When the USB is set to Enabled in the BIOS, and JPUSB1 is set to Disabled, remove the USB devices from backpanel USB Ports 0/1 before the system goes into the standby mode.

A. Watch Dog Reset
B. USB 0/1 Wake-up



TPM Support Enable (JPT1)

JPT1 allows the user to enable TPM (Trusted Platform Module) support to improve data integrity and system security. See the table on the right for jumper settings. The default setting is **Enabled**.

TPM Support Enable Jumper Settings	
Jumper Setting	Definition
1-2 (Default)	Enabled
2-3	Disabled

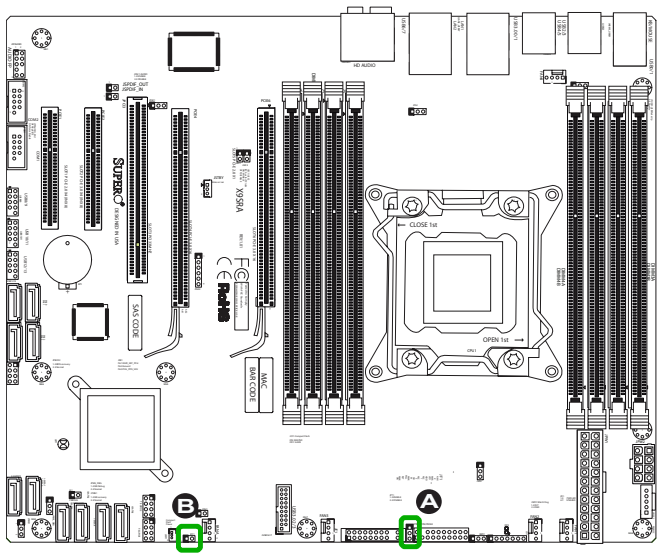
CF Card Master/Slave (JCF1)

A Compact Flash Card Master/Slave Select Jumper is located at JCF1. Close this jumper to enable Compact Flash Card. For the Compact Flash Card or the Compact Flash Jumper (JCF1) to work properly, you will need to connect the Compact Flash-Card power cable to JWF1 first. Refer tothe board layout below for the location.

CF Slave/Master Jumper Settings	
Jumper Setting	Definition
Open	Slave
Closed	Master

A. TPM Support Enable

B. CF Card Master/Slave Select



ME Recovery (JPME1)

ME Recovery (JPME1) is used to enable or disable the ME Recovery feature of the motherboard. Install the jumper on pins 1-2 for normal operation. Install pins 2-3 to reset Intel ME values back to their default settings. The default setting is pins 1-2 (Normal).

ME Recovery Jumper Settings	
Jumper Setting	Definition
1-2 (Default)	Normal
2-3	Recover

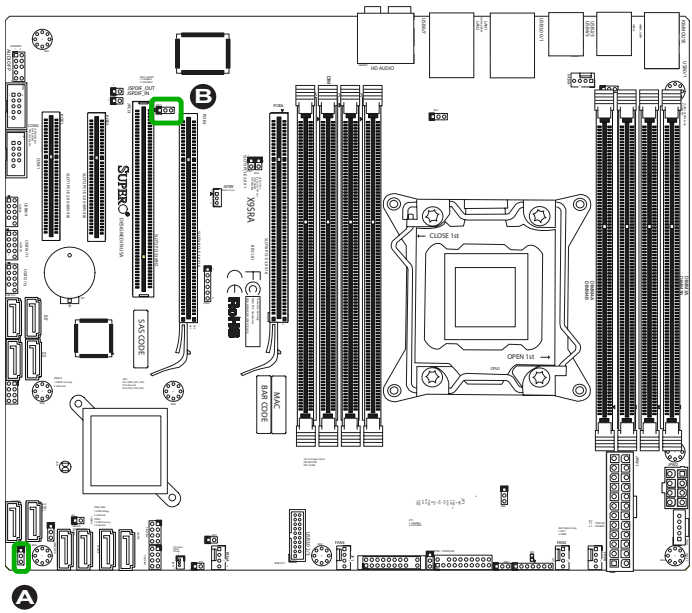
Audio Enable (JPAC1)

JPAC enables or disables the onboard audio connections. See the table on the right for jumper settings. The default setting is Enabled.

Audio Enable (JPAC1)	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled

A. ME Recovery

B. Audio Enable

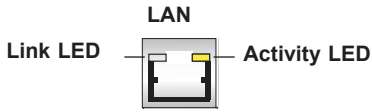


2-8 Onboard Indicators

LAN Port LEDs

The LAN ports are located on the I/O backpanel of the motherboard. Each Ethernet LAN port has two LEDs. The yellow LED indicates activity, while the Link LED may be green, amber, or off to indicate the speed of the connections. See the table on the right for more information.

LAN Link LEDs (Green/Amber/Off)	
LED Color	Definition
Off	No Connection or 10 Mbps
Green	100 Mbps
Amber	1 Gbps

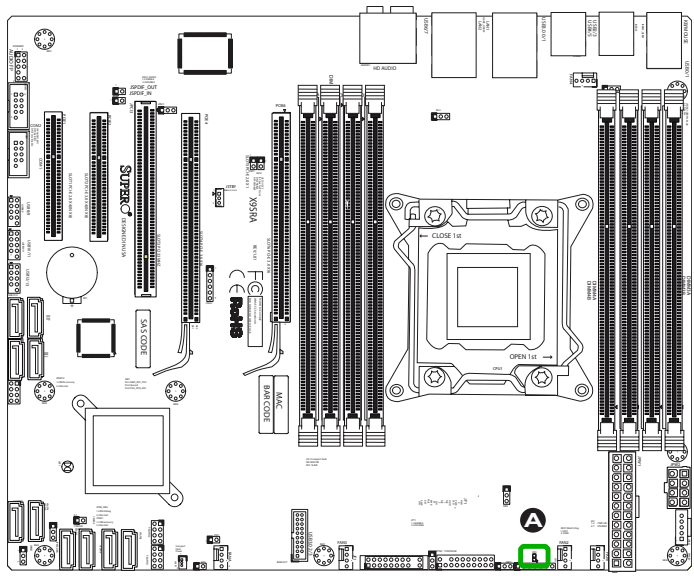


Onboard Power LED (DP2)

An Onboard Power LED is located at DP2 on the motherboard. When DP2 is on, it means that the AC power cable is connected, the power supply switch and soft switch are on, and the system is running.

Onboard PWR LED (DP2) LED Status	
Status	Definition
Off	System Off (Soft Switch)
On	System is Running

A. Onboard Power LED



2-9 SATA and SAS Connections

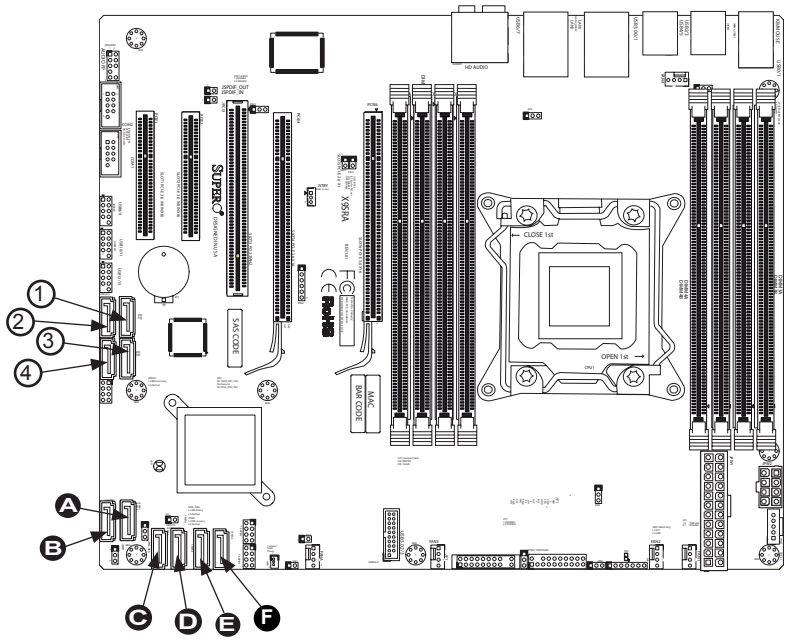
SATA/SAS Connections

There are eight (8) SATA 2.0 ports and two (2) SATA 3.0 ports on the motherboard. See the layout below for the location of the connectors.

SATA Connectors Pin Definitions	
Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

A. I-SATA 0 (3.0) (via AHCI)
B. I-SATA 1 (3.0) (via AHCI)
C. I-SATA 2 (2.0) (via AHCI)
D. I-SATA 3 (2.0) (via AHCI)
E. I-SATA 4 (2.0) (via AHCI)
F. I-SATA 5 (2.0) (via AHCI)

1. SATA 0 (2.0) (via SCU)
2. SATA 1 (2.0) (via SCU)
3. SATA 2 (2.0) (via SCU)
4. SATA 3 (2.0) (via SCU)



Notes

Chapter 3

Troubleshooting

3-1 Troubleshooting Procedures

Use the following procedures to troubleshoot your system. If you have followed all of the procedures below and still need assistance, refer to the 'Technical Support Procedures' and/or 'Returning Merchandise for Service' section(s) in this chapter. Always disconnect the AC power cord before adding, changing or installing any hardware components.

Before Power On

1. Make sure that the Standby is not on. (**Note:** If it is on, the onboard power is on. Be sure to unplug the power cable before installing or removing the components.)

2. Make sure that there are no short circuits between the motherboard and chassis.

3. Disconnect all ribbon/wire cables from the motherboard, including those for the keyboard and mouse. Also, be sure to remove all add-on cards.

4. Install a CPU and heatsink (-be sure that it is fully seated) and then connect the chassis speaker and the power LED to the motherboard. Check all jumper settings as well.

No Power

1. Make sure that there are no short circuits between the motherboard and chassis.

2. Make sure that all jumpers are set to their default positions.

3. Check if the 115V/230V switch on the power supply is properly set.

4. Turn the power switch on and off to test the system.

5. The battery on your motherboard may be old. Check to make sure that it still supplies ~3VDC. If it does not, replace it with a new one.

No Video

1. If the power is on, but you have no video--in this case, you will need to remove all the add-on cards and cables first.

2. Use the speaker to determine if any beep codes exist. (Refer to Appendix A for details on beep codes.)

3. Remove all memory modules and turn on the system. (If the alarm is on, check the specs of memory modules, reset the memory or try a different one.)

Memory Errors

1. Make sure that the DIMM modules are properly installed and fully seated in the slots.

2. You should be using memory recommended by Supermicro (see Section 2-3). Also, it is recommended that you use the memory modules of the same type and speed for all DIMMs in the system. Do not use memory modules of different sizes, different speeds and different types on the same motherboard.

3. Check for bad DIMM modules or slots by swapping modules between slots to see if you can locate the faulty ones.

4. Check the switch of 115V/230V power supply.

When System Loses the Setup Configuration

1. Please be sure to use a high quality power supply. A poor quality power supply may cause the system to lose CMOS setup information. Refer to Section 1-5 for details on recommended power supplies.

2. The battery on your motherboard may be old. Check to verify that it still supplies ~3VDC. If it does not, replace it with a new one.

3. If the above steps do not fix the Setup Configuration problem, contact your vendor for repairs.

3-2 Technical Support Procedures

Before contacting Technical Support, please make sure that you have followed all the steps listed below. Also, Note that as a motherboard manufacturer, Supermicro does not sell directly to end users, so it is best to first check with your distributor or reseller for troubleshooting services. They should know of any possible problem(s) with the specific system configuration that was sold to you.

1. Please go through the 'Troubleshooting Procedures' and 'Frequently Asked Question' (FAQ) sections in this chapter or see the FAQs on our website (http://www.supermicro.com/support/faqs/) before contacting Technical Support.

2. BIOS upgrades can be downloaded from our website at (http://www.supermicro.com/support/bios/).

   Note: Not all BIOS can be flashed. Some cannot be flashed; it depends on the boot block code of the BIOS.

3. If you've followed the instructions above to troubleshoot your system, and still cannot resolve the problem, then contact Supermicro's technical support and provide them with the following information:

- Motherboard model and PCB revision number
- BIOS release date/version (this can be seen on the initial display when your system first boots up)
- System configuration
- An example of a Technical Support form is on our website at (http://www.supermicro.com/support/contact.cfm).

4. Distributors: For immediate assistance, please have your account number ready when placing a call to our technical support department. We can be reached by e-mail at support@supermicro.com, by phone at: (408) 503-8000, option 2, or by fax at (408)503-8019.

3-3 Frequently Asked Questions

Question: What type of memory does my motherboard support?

Answer: Please see Section 2-3 for a comprehensive answer.

Question: How do I update my BIOS?

Answer: It is recommended that you **do not** upgrade your BIOS if you are not experiencing any problems with your system. Updated BIOS files are located on our website at http://www.supermicro.com/support/bios/. Please check our BIOS warning message and the information on how to update your BIOS on our web site. Select your motherboard model and download the BIOS ROM file to your computer. Also, check the current BIOS revision to make sure that it is newer than your BIOS before downloading. Please unzip the BIOS file onto a bootable device or a USB pen/thumb drive. To flash the BIOS, run the batch file named "ami.bat" with the new BIOS ROM file from your bootable device or USB pen/thumb drive. Use the following format:

F:\> ami.bat BIOS-ROM-filename.xxx <Enter>

Note: Always use the file named "ami.bat" to update the BIOS, and insert a space between "ami.bat" and the filename. The BIOS-ROM-filename will bear the motherboard name (i.e., X9SRA) and build version as the extension. For example, "X9SRA1.218". When completed, your system will automatically reboot.

When the BIOS flashing screen is completed, the system will reboot and will show "Press F1 or F2". At this point, you will need to load the BIOS defaults. Press <F1> to go to the BIOS setup screen, and press <F9> to load the default settings. Next, press <F10> to save and exit. The system will then reboot.

Warning: Do not shut down or reset the system while updating the BIOS to prevent possible system boot failure!

Note: The SPI BIOS chip installed on this motherboard is not removable. To repair or replace a damaged BIOS chip, please send your motherboard to RMA at Supermicro for service.

Question: I think my BIOS is corrupted. How can I recover my BIOS?

Answer: Please see Appendix C-BIOS Recovery for detailed instructions.

Question: What's on the CD that came with my motherboard?

Answer: The supplied compact disc has quite a few drivers and programs that will greatly enhance your system. We recommend that you review the CD and install the applications you need. Applications on the CD include chipset drivers for Windows, security programs, and audio drivers.

Question: Why do I get an error message “IASTOR.SYS read error” and "press F6 to install Intel RAID driver" when installing Windows on my motherboard?

Answer: To solve this issue, disable the IPMI jumper (if your motherboard has this feature). Another solution is to use a USB floppy drive instead of the onboard floppy drive. For the IPMI jumper location, please check Chapter 1.

Question: What is the heatsink part number for my X9SRA motherboard series?

Answer: The recommended heatsink for this motherboard installed in a chassis 3U and above is SNK-P0050AP4.

Question: Why can't I recover the BIOS even when I’ve followed the instructions in the user’s manual for the motherboard?

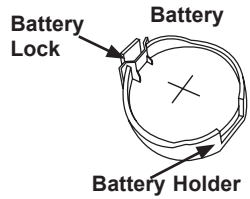
Answer: Please disable the IPMI jumper and try it again. For the jumper location, please check Chapter 1.

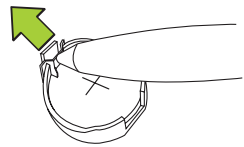
3-4 Battery Removal and Installation

Battery Removal

To remove the onboard battery, follow the steps below:

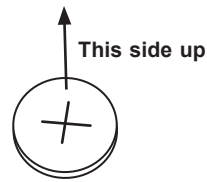
1. Power off your system and unplug your power cable.
2. Locate the onboard battery as shown below.
3. Using a tool such as a pen or a small screwdriver, push the battery lock outwards to unlock it. Once unlocked, the battery will pop out from the holder.
4. Remove the battery.





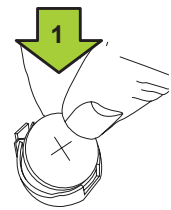
Proper Battery Disposal

Warning: Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.



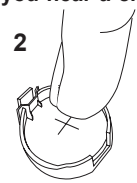
Battery Installation

1. To install an onboard battery, follow the steps 1 & 2 above and continue below:
2. Identify the battery's polarity. The positive (+) side should be facing up.
3. Insert the battery into the battery holder and push it down until you hear a click to ensure that the battery is securely locked.



Warning: When replacing a battery, be sure to only replace it with the same type.

Press down until you hear a click.



3-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. For faster service, you may also obtain RMA authorizations online (http://www.supermicro.com/RmaForm/). When you return the motherboard to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Notes

Chapter 4

BIOS

4-1 Introduction

This chapter describes the AMI BIOS Setup Utility for the X9SRA motherboard series. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

Note: For instructions on BIOS recovery, please refer to the instruction guide posted at http://www.supermicro.com/support/manuals/.

Starting BIOS Setup Utility

To enter the AMI BIOS Setup Utility screens, press the <Delete> key while the system is booting up.

Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F1>, <F2>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often a text message will accompany it. (**Note**: the AMI BIOS has default text messages built in. Supermicro retains the option to include, omit, or change any of these text messages.)

The AMI BIOS Setup Utility uses a key-based navigation system called "hot keys". Most of the AMI BIOS setup utility "hot keys" can be used at any time during the setup navigation process. These keys include <F1>, <F10>, <Enter>, <ESC>, arrow keys, etc.

Note: Options printed in **Bold** are default settings.

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS Setup utility. This Setup utility can be accessed by pressing <Del> at the appropriate time during system boot.

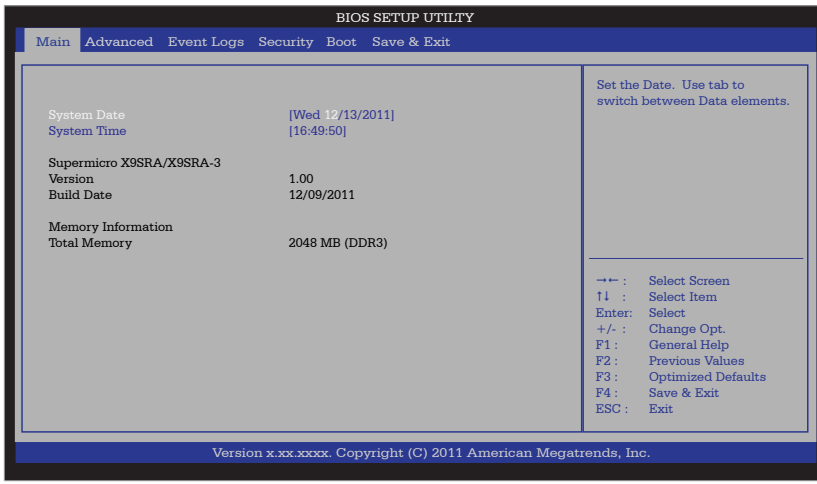
How to Start the Setup Utility

Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS Setup Utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen, below the copyright message.

Warning: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is updating. This is to avoid possible boot failure.

4-2 Main Setup

When you first enter the AMI BIOS Setup Utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.


BIOS SETUP UTILITY
Main Advanced Event Logs Security Boot Save & Exit
System Date [Wed 12/13/2011]
System Time [16:49:50]
Supermicro X9SRA/X9SRA-3
Version 1.00
Build Date 12/09/2011
Memory Information
Total Memory 2048 MB (DDR3)
Set the Date. Use tab to switch between Data elements.
→← : Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version x.xx.xxxx. Copyright (C) 2011 American Megatrends, Inc.

System Overview: The following BIOS information will be displayed:

System Time/System Date

Use this option to change the system time and date. Highlight *System Time* or *System Date* using the arrow keys. Enter new values through the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YY format. The time is entered in HH:MM:SS format. (**Note:** The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.)

Supermicro X9SRA

Version

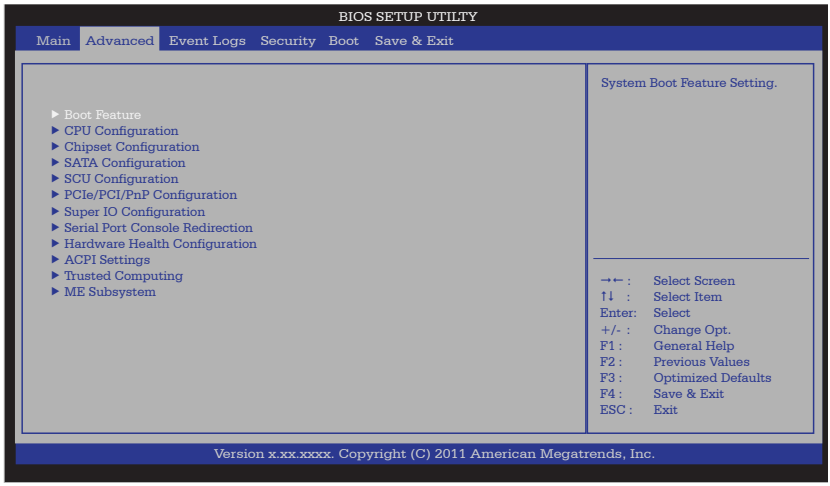
Build Date

Memory Information

Total Memory

4-3 Advanced Setup Configurations

Use the arrow keys to select Boot Setup and hit <Enter> to access the submenu items:



▶BOOT Feature

Quiet Boot

This option allows the bootup screen options to be modified between POST messages or the OEM logo. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

AddOn ROM Display Mode

This sets the display mode for Option ROM. The options are **Force BIOS** and Keep Current.

Bootup Num-Lock

This feature selects the Power-on state for Numlock key. The options are Off and **On**.

Wait For 'F1' If Error

This forces the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Enabled, the ROM BIOS of the host adaptors will "capture" Interrupt

19 at boot and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Disabled, the ROM BIOS of the host adaptors will not capture Interrupt 19, and the drives attached to these adaptors will not function as bootable devices. The options are **Enabled** and Disabled.

Watch Dog Function

If enabled, the Watch Dog Timer will allow the system to reboot when it is inactive for more than 5 minutes. The options are Enabled and **Disabled.**

Power Button Function

This feature controls how the system shuts down when the power button is pressed. Select 4-Seconds Override to force the user to press and hold the Power Button for 4 seconds before the system turns off. Select Instant Off if you want the system to instanty power off when the Power Button is pressed. The options are 4 Seconds Override and **Instant Off.**

Restore on AC Power Loss

Use this feature to set the power state after a power outage. Select Stay-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last state before a power loss. The options are Power-On, Stay-Off and **Last State**.

▶CPU Configuration

Warning: Take Caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency or incorrect DRAM timing may cause system to become unstable. When this occurs, revert to the default setting.

▶Socket 1 CPU Information

This item is for informational purposes only and displays CPU information including type, speed, number of cores, etc.

Clock Spread Spectrum

Select Enable to use the feature of Clock Spectrum, which will allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. Select Disabled to enhance system stability. The options are **Disabled** and Enabled.

Hyper Threading

Set to Enabled to use the processor's Hyper Threading Technology feature. The options are **Enabled** and Disabled.

Active Processor Cores

Set to Enabled to use a processor's Second Core and beyond. (Please refer to Intel's web site for more information.) The options are **All,** 1, 2, 3, 4, 5, 6 and 7.

Limit CPUID Maximum

This feature allows the user to set the maximum CPU ID value. Enable this function to boot the legacy operating systems that cannot support processors with extended CPUID functions. The options are Enabled and **Disabled** (for the Windows OS.).

Execute-Disable Bit (Available when supported by the OS and the CPU)

Set to Enabled to enable the Execute Disable Bit which will allow the processor to designate areas in the system memory where an application code can execute and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The default is **Enabled**. (Refer to Intel and Microsoft Web Sites for more information.)

Intel® AES-NI

Set to Enabled to use the processor's Advanced Encryption Standard (AES) feature. The options are **Enabled** and Disabled.

Hardware Prefetcher (Available when supported by the CPU)

If set to Enabled, the hardware pre fetcher will pre fetch streams of data and instructions from the main memory to the L2 cache in the forward or backward manner to improve CPU performance. The options are Disabled and **Enabled**.

Adjacent Cache Line Prefetch (Available when supported by the CPU)

The CPU fetches the cache line for 64 bytes if this option is set to Disabled. The CPU fetches both cache lines for 128 bytes as comprised if **Enabled**.

DCU Streamer Prefetcher

This feature enables prefetch of the next L1 data line based on multiple loads in the same cache line. The options are **Enabled** and Disabled.

DCU IP Prefetcher

Set this feature to Enabled to activate the L1 Data Prefetcher based on sequential load history. The options are **Enabled** and Disabled.

Intel® Virtualization Technology (Available when supported by the CPU)

Select Enabled to use the feature of Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions,

creating multiple "virtual" systems in one physical computer. The options are **Enabled** and Disabled.

Note: If there is any change to this setting, you will need to power off and restart the system for the change to take effect. Please refer to Intel's web site for detailed information.

▶CPU Power Management Configuration

Power Technology

This feature determines what power-saving scheme the motherboard uses. The options are Disabled, **Energy Efficient** and Custom. If Custom is selected, the following options become available:

EIST

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are Disabled and **Enabled**.

Turbo Mode

This feature allows processor cores to run faster than marked frequency in specific conditions. The options are Disabled and **Enabled.**

C1E Support

Select Enabled to use the "Enhanced Halt State" feature. C1E significantly reduces the CPU's power consumption by reducing the CPU's clock cycle and voltage during a "Halt State." The options are Disabled and **Enabled**.

CPU C3 Report, CPU C6, CPU C7 Report

This BIOS feature enables or disables C3 (ACPI C2), C6 (ACPI C3). C7 (ACPI C3) reporting to the operating system. The options are **Disabled** and Enabled.

Package C State Limit

If set to Auto, the AMI BIOS will automatically set the limit on the C-State package register. The options are C0, C1, **C6**, and No Limit.

Long duration power limit - this is the processor power consumption limit (in Watts) during a long duration time window.

Long duration maintained - this is the time in milliseconds where the Long Duration Power Limit is maintained.

Short duration power limit - During Turbo Mode, the system may exceed the processor's default power setting and exceed the Short Duration Power limit. By increasing this value, the processor can provide better performance for a short duration.

▶Chipset Configuration

WARNING: Setting the wrong values in the following sections may cause the system to malfunction.

▶North Bridge Configuration

▶Integrated IO Configuration

Intel® VT-d

Select Enabled to enable Intel's Virtualization Technology support for Direct I/O VT-d by reporting the I/O device assignments to VMM through the DMAR ACPI Tables. This feature offers fully-protected I/O resource-sharing across the Intel platforms, providing the user with greater reliability, security and availability in networking and data-sharing. The settings are **Enabled** and Disabled.

Intel® I/OAT

The Intel I/OAT (I/O Acceleration Technology) significantly reduces CPU overhead by leveraging CPU architectural improvements, freeing resources for more other tasks. The options are Disabled and **Enabled**.

DCA Support

This feature accelerates the performance of I/O devices using Direct Cache Access. The options are **Enabled** and Disabled.

IIO 1 PCIe Port Bifurcation Control

Slot 2 PCI-E 3.0 x4 Link Speed

This feature enables the user to select the target link speed for this slot. The options are GEN1, GEN2 and **GEN3**.

Slot 6 PCI-E 3.0 x16 Link Speed

This feature enables the user to select the target link speed for this slot. The options are GEN1, GEN2 and **GEN3**.

Slot 4 PCI-E 3.0 x16 Link Speed

This feature enables the user to select the target link speed for this slot. The options are GEN1, GEN2 and **GEN3**.

▶DIMM Configuration

Memory Configuration

This section displays memory status such as Current Memory Mode, Memory Speed, Mirroring and Sparing information.

▶DIMM Information

This feature displays information regarding the installed memory.

Memory Mode

The options are **Independent**, Mirroring, Lockstep and Sparing.

Independent - All DIMMs are available to the operating system.

Mirroring - The motherboard maintains two identical copies of all data in memory for redundancy.

Lockstep - The motherboard uses two areas of memory to run the same set of operations in parallel.

Sparing - A preset threshold of correctable errors is used to trigger fail-over. The spare memory is put online and used as active memory in place of the failed memory.

DRAM RAPL Mode

RAPL which stands for Running Average Power Limit is a feature that provides mechanisms to enforce power consumption limits on supported processors The options are DRAM RAPL MODE0 , **DRAM RAPL MODE1**, and Disabled.

DDR Speed

Use this option to force the system memory to run at a different frequency than the default frequency. The available options are **Auto**, Force DDR-800, Force DDR-1066, Force DDR-1333, Force DDR3-1600 and Force SPD.

Channel Interleaving

This feature selects from the different channel memory interleaving methods. The options are **Auto,** 1 Way, 2 Way, 3 Way and 4 Way.

Rank Interleaving

This feature selects from the different rank memory interleaving methods. The options are **Auto,** 1 Way, 2 Way, 3 Way, 4 Way and 8 Way.

Patrol Scrub

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this item is set to Enabled, the North Bridge will read and write back one cache line every 16K cycles, if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the North Bridge will be scrubbed every day. The options are **Enabled** and Disabled.

Demand Scrub

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found on a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is updated as well. Select Enabled to use Demand Scrubbing for ECC memory correction. The options are Enabled and **Disabled**.

Data Scrambling

This feature enables Data Scrambling. The options are **Enabled** and Disabled.

Device Tagging

This feature enables Device Tagging. The options are Enabled and **Disabled**.

Thermal Throttling

This feature selects from the different throttling methods. The options are Disabled and **CLTT**.

CLTT - Closed Loop Thermal Throttling.

▶South Bridge Configuration

This item displays the current South Bridge Revision.

All USB Devices

This feature enables all USB ports/devices. The options are **Enabled** and Disabled.

EHCI Controller 1 / EHCI Controller 2

This feature enables the Enhanced Host Controller Interface (EHCI). The options are **Enabled** and Disabled.

Legacy USB Support

This feature enables support for legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disable to have USB devices available only for EFI applicatioins. The options are **Enabled,** Disabled and Auto.

Port 60/64 Emulation

This feature enables I/O port 60h/64h emulation support. This should be enabled for complete USB keyboard legacy support for non-USB aware Operating Systems. The options are **Enabled,** and Disabled

EHCI Hand-Off

This item is for Operating Systems that does not support Enhanced Host Controller Interface (EHCI) hand-off. When enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are Enabled and **Disabled**.

GbE Controller

Select Enabled to activate the onboard gigabit Ethernet controller. The settings are **Enabled** and Disabled.

Wake on LAN from S5

Select Enabled to activate the capabiltiy to 'wake-up' the system from the S5 power state (Soft Off State) through the Ethernet controller. The settings are **Enabled** and Disabled.

Deep Sx (EUP)

Select Enabled to enable Deep Sleep State support. The settings are Enabled and **Disabled.**

Azalia HD Audio

This feature disables the Azalia High Definition Audio support. The options are **Enabled** and Disabled.

▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA Devices and displays the following items:

SATA Port0~Port5

This item displays the information detected on the installed SATA drives on the particular SATA port.

SATA Mode

This item selects the mode for the installed drives. The options are Disabled, IDE Mode, **AHCI Mode** and RAID Mode. The following are displayed depending on your selection:

IDE Mode

The following items are displayed when IDE Mode is selected:

Serial-ATA Controller 0~1

This feature is used to activate/deactivate the SATA controller, and sets the compatibility mode. The options are Disabled, Enhanced and **Compatible.** The default of Serial-ATA Controller 1 is **Enhanced**.

AHCI Mode

The following items are displayed when AHCI Mode is selected:

Aggressive Link Power Management

This feature Enables or Disables Agressive Link Power Management support for Cougar Point B0 stepping and later. The options are **Enabled** and Disabled.

Port 0~5 Hot Plug

Set this item to Enabled to enable hot-plugging for the particular port. The options are **Enabled** and Disabled.

Staggered Spin Up

Set this item to Enabled to enable Staggered Spin-up support. The options are Enabled and **Disabled**.

RAID Mode

The following items are displayed when RAID Mode is selected:

Port 0~5 Hot Plug

Set this item to Enabled to enable hot-plugging for the particular port. The options are **Enabled** and Disabled.

▶SCU Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SAS SCU Devices and displays the following items:

Disable Storage Controller Unit (SCU) Devices

Set this item to Enabled to activate the chipset's SCU devices. The options are **Enabled** and Disabled.

OnChip SCU Option PROM

Set this item to Enabled to activate the onboard SAS option ROM. The options are **Enabled** and Disabled.

▶PCIe/PCI/PnP Configuration

This feature allows the user to set the PCI/PnP configurations for the following items:

PCI ROM Priority

In case of multiple Option ROMs (Legacy and EFI-compatible), this feature specifies what ROM to launch. The options are **Legacy ROM** and EFI Compatible ROM.

PCI Latency Timer

This feature sets the latency Timer of each PCI device installed on a PCI bus. Select 64 to set the PCI latency to 64 PCI clock cycles. The options are 32 PCI Bus Clocks, **64 PCI Bus Clocks**, 96 PCI Bus Clocks, 128 PCI Bus Clocks, 160 PCI Bus Clocks, 192 PCI Bus Clocks, 224 PCI Bus Clocks and 248 PCI Bus Clocks.

Above 4G Decoding

Set this item to Enabled to activate 64-bit capable devices to be decoded above the 4G address space. This works only if the system supports 64-bit PCI decoding. The options are Enabled and **Disabled**.

PERR# Generation

Set this item to Enabled to allow PCI devices to generate PERR# error codes. The options are Enabled and **Disabled**.

SERR# Generation

Set this item to Enabled to allow PCI devices to generate SERR# error codes. The options are Enabled and **Disabled**.

Maximum Payload

This feature selects the setting for the PCIE maximum payload size. The options are **Auto,** 128 Bytes**,** and 256 Bytes**.**

Maximum Read Request

This feature selects the setting for the PCIE maximum Read Request size. The options are **Auto,** 128 Bytes**,** 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes**.**

ASPM Support

Set this item to the desired ASPM (Active State Power Management) level. The options are **Disabled,** Auto and Force L0s..

Slot 1 PCI-E 2.0 x4 OPROM,
Slot 2 PCI-E 3.0 x4 OPROM,
Slot 3 PCI 33MHz OPROM,
Slot 4 PCI-E 3.0 x16 OPROM,
Slot 5 PCI-E 2.0 x1 OPROM,
Slot 6 PCI-E 3.0 x16 OPROM

Use this feature to enable or disable PCI-E or PCI slot Option ROMs. The options are Disabled and **Enabled.**

Onboard LAN Option ROM Select

This feature selects whether to load the iSCSI or PXE onboard LAN option ROM. The options are iSCSI and **PXE**.

Load Onboard LAN1 Option ROM / Load Onboard LAN2 Option ROM

This feature is to enable or disable the onboard option ROMs. The options are Disabled and Enabled. The default for LAN 1 is **Enabled**. Default for LAN 2 is **Disabled**.

Load Onboard SAS Option ROM

This feature selects whether to load the SAS option ROM. The options **Enabled** and Disabled.

VGA Priority

This option allows the user to specify which graphics controller to be used as the primary boot device. The options are **Onboard** and Offboard.

▶Super IO Device Configuration

▶Serial Port 1 Configuration / Serial Port 2 Configuration

Serial Port 1 / Serial Port 2

Select Enabled to enable the onboard serial port. The options are **Enabled** and Disabled.

Serial Port 1 Settings / Serial Port 2 Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 and Serial Port 2. Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port becomes unavailable.

The options for Serial Port 1 are:

Auto,

IO=3F8h; IRQ=4;

IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

The options for Serial Port 2 are:

Auto,

IO=2F8h; IRQ=3;

IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

▶Serial Port Console Redirection

COM1, COM2 Console Redirection

Use this feature to enable console redirection for COM1, and COM2 ports. The options are Enabled and Disabled. The default for COM1 and COM2 is **Disabled**.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Terminal Type : Select ANSI, **VT100**, VT100+, or VT-UTF8

Bits per Second (BPS): 9600, 19200, 38400, 57600, or **115200**

Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

Flow Control: **None** or Hardware RTS/CTS

VT-UTF8 Combo Key Support: **Enabled** or Disabled

Recorder Mode: **Disabled** or Enabled

Resolution 100x31: Disabled or **Enabled**

Legacy OS Redirection Resolution: 80x24 or **80x25**

PuTTY Keypad: **VT100**, Linux, XTerm86, SCO, ESCN, VT400

Serial Port for Out-of-Band Management / Windows Emergency Management Services (EMS)

Use this feature to enable console redirection.

Console Redirection

Use this feature to enable console redirection for Serial Port Out-of-Band Management / Windows Emergency Management Services (EMS) ports. The options are **Enabled** and Disabled.

▶Console Redirection Settings

Configure the following options for the Console Redirection Settings. The most common settings are set as default:

Out-of-Band Mgmt Port: **COM1**, COM2

Terminal Type : Select ANSI, VT100, VT100+, or **VT-UTF8**

Bits per Second (BPS): 9600, 19200, 57600, or **115200**

Flow Control: **None,** Hardware RTS/CTS, Software Xon/Xoff

Data Bits: **8** or 7

Parity: **None**, Even, Odd, Mark, or Space

Stop Bits: **1** or 2

▶Hardware Health Configuration

Fan Speed Control Mode

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase for effective

system cooling. Select "Full Speed" to allow the onboard fans to run at full speed (of 100% Pulse Width Modulation Duty Cycle) for maximum cooling. This setting is recommended for special system configuration or debugging. Select "Standard" for the onboard fans to run at 50% of the Initial PWM Cycle in order to balance the needs between system cooling and power saving. This setting is recommended for regular systems with normal hardware configurations. Select "Optimal" for the onboard fans to run at 30% of the Initial PWM Cycle for best power efficiency and maximum quietness. The options are Full Speed (@100% of PWM Cycle), **Standard** (@50% of PWM Cycle), and Optimal (@30% of PWM Cycle).

CPU Temperature Display Mode

This feature displays the CPU temperature detected by DTS (i.e., +34^{o}C) or temperature status in text ("Low", "Medium" or "High"). The options are **Text Mode** or DTS.

CPU Temperature

If Text Mode is selected, the CPU Temperature Display Mode will show the CPU temperature status as follows:

Low – This level is considered as the 'normal' operating state. The CPU temperature is well below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS (Fan Speed Control).

User intervention: No action required.

Medium – The processor is running warmer. This is a 'precautionary' level and generally means that there may be factors contributing to this condition, but the CPU is still within its normal operating state and below the CPU 'Temperature Tolerance'. The motherboard fans and CPU will run normally as configured in the BIOS. The fans may adjust to a faster speed depending on the Fan Speed Control settings.

User intervention: No action is required. However, consider checking the CPU fans and the chassis ventilation for blockage.

High – The processor is running hot. This is a 'caution' level since the CPU's 'Temperature Tolerance' has been reached (or has been exceeded) and may activate an overheat alarm:

The information provided above is for your reference only. For more information on thermal management, please refer to Intel's Web site at www.Intel.com.

System Temperature / Peripheral Temperature

This feature displays the system and peripheral device temperatures, as detected by the motherboard sensors.

Fan 1 ~ Fan 4, Fan A Speed

This feature displays the fan speed readings from fan interfaces Fan1 through Fan4 and FanA.

VCORE, 12V, VDIMM, 5VCC, CPU VTT, AVCC, 3.3VCC, VSB, VBAT

This feature displays the current voltages of the above voltage monitors.

▶ACPI Settings

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

ACPI Sleep State

This setting allows you to configure the ACPI (Advanced Configuration and Power Interface) sleep state for your system when it is in the Suspend mode. The options are Suspend Disabled, **S1 (CPU Stop Clock)**, and S3 (Suspend to RAM). S3 (Suspend to RAM) is the deepest sleep state in these options.

High Precision Event Timer

Select Enabled to activate the High Performance Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

▶Trusted Computing

TPM Support

Select Enable to activate BIOS support for trusted platforms (TPM 1.1/1.2) and allow the BIOS to automatically download the drivers needed to provide support for the platforms specified. The options are Disable and **Enable**.

TPM State

This feature changes the TPM State. The options are Disabled and **Enabled**. Note: The system will restart to change the TPM State.

Pending operation

Displays any TPM-related operation by the system.

Pending operation

The following are informational status messages that indicate the current TPM State:

TPM Enabled Status

TPM Active Status

TPM Owner Status

▶Intel® TXT (LT-SX) Configuration

Intel TXT Initialization

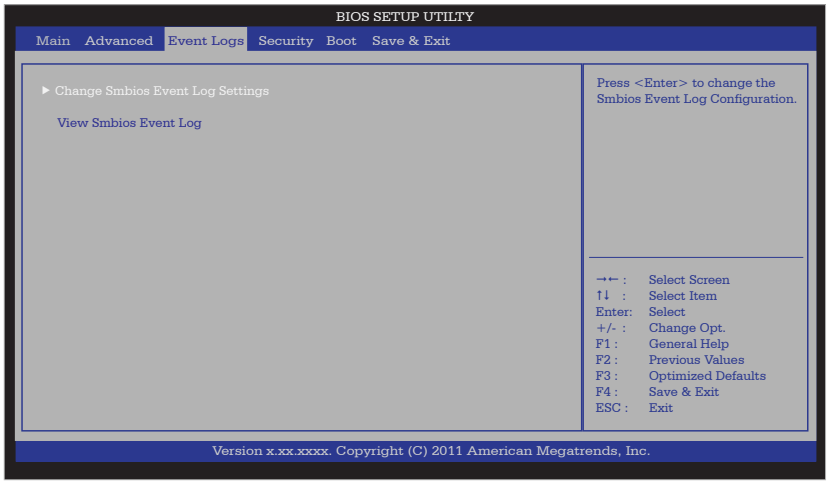
Intel TXT (Trusted Execution Technology) helps protect against software-based attacks and ensures protection, confidentiality and integrity of data stored or created on the system. The options are Enabled and **Disabled.**

This section also displays Intel TXT related information and dependencies needed to support this feature.

▶ME Subsystem

This item displays the ME Subsystem information.

4-4 Event Logs


BIOS SETUP UTILITY
Main Advanced Event Logs Security Boot Save & Exit
► Change Smbios Event Log Settings
View Smbios Event Log
Press <Enter> to change the Smbios Event Log Configuration.
→← : Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version x.xx.xxxx. Copyright (C) 2011 American Megatrends, Inc.

▶Change SmBIOS Event Log Settings

Smbios Event Log

Change this item to enable or disable all features of the Smbios Event Logging during boot. The options are **Enabled** and Disabled.

Runtime Error Logging Support

Change this item to enable or disable runtime error logging. The options are **Enabled** and Disabled.

Memory Correction Error Threshold

Change this item to define the system's memory correction error threshold. Directly enter a numeric value, **default is 10**.

PCI Error Logging Support

Change this item to enable or disable runtime error logging. The options are Enabled and **Disabled**.

Erase Event Log

This option erases all logged events. The options are **No**, Yes, Next reset and Yes, Every reset.

When Log is Full

This option automatically clears the Event Log memory of all messages when it is full. The options are **Do Nothing** and Erase Immediately.

Log System Boot Event

This option toggles the System Boot Event logging to enabled or disabled. The options are **Disabled** and Enabled.

MECI

The Multiple Event Count Increment (MECI) counter counts the number of occurences a duplicate event must happen before the MECI counter is incremented. This is a numeric value.

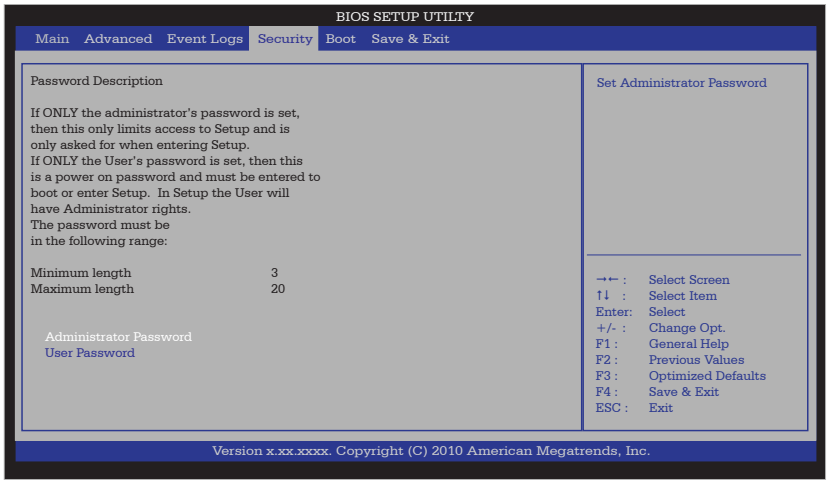
METW

The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99.

View SmBIOS Event Log

This feature displays the contents of the SmBIOS Event Log.

4-5 Security Settings


BIOS SETUP UTILTY
Main Advanced Event Logs Security Boot Save & Exit
Password Description
If ONLY the administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password must be in the following range:
Minimum length 3
Maximum length 20
Administrator Password
User Password
Set Administrator Password
→← : Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.

- If the Administrator password is defined ONLY - this controls access to the BIOS setup ONLY.
- If the User's password is defined ONLY - this password will need to be entered during each system startup or boot, and will also have Administrator rights in the setup.
- Passwords must be at least 3 and up to 20 characters long.

Administrator Password

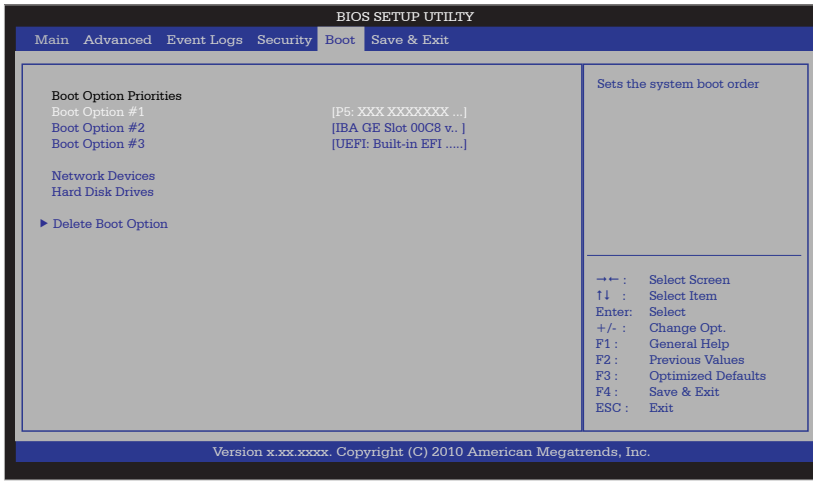
Press Enter to create a new, or change an existing Administrator password.

User Password:

Press Enter to create a new, or change an existing User password.

4-6 Boot

Use this feature to configure Boot Settings:


BIOS SETUP UTILTY
Main Advanced Event Logs Security Boot Save & Exit
Boot Option Priorities
Boot Option #1 [P5: XXX XXXXXXX ...]
Boot Option #2 [IBA GE Slot 00C8 v..]
Boot Option #3 [UEFI: Built-in EFI .....]
Network Devices
Hard Disk Drives
▶ Delete Boot Option
Sets the system boot order
→← : Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version x.xx.xxxx. Copyright (C) 2010 American Megatrends, Inc.

Boot Options Priorities

This feature allows the user to specify which devices are boot devices and the order of priority from which the systems boots from during startup.

Boot Option #1, Boot option #2, Boot Option #3, etc

The settings are **Built-in EFI Shell**, [any detected boot device] and Disabled.

USB Device BBS Priorities

Network Devices, Hard Disk Drives

This option sets the order of the legacy network devices and Hard Disks detected by the motherboard.

Add New Boot Option

▶Delete Boot Option

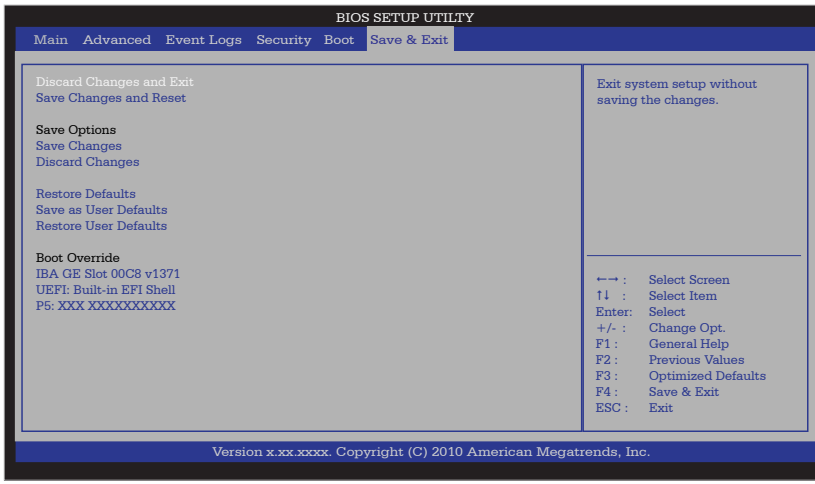
This feature allows the user to delete a previously defined boot device from which the systems boots from during startup.

Boot Option #1, Boot option #2, Boot Option #3, etc

The settings are **Built-in EFI Shell**, and [any pre defined boot device]

4-7 Save & Exit

Select the Exit tab from the BIOS Setup Utility screen to enter the Exit BIOS Setup screen.



Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

Save Changes and Reset

When you have completed the system configuration changes, select this option to leave the BIOS Setup Utility and reboot the computer, so the new system configuration parameters can take effect. Select Save Changes and Exit from the Exit menu and press <Enter>.

Save Changes

When you have completed the system configuration changes, select this option to save any changes made. This will not reset (reboot) the system.

Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS Utility Program.

Restore Optimized Defaults

To set this feature, select Restore Defaults from the Exit menu and press <Enter>. These are factory settings designed for maximum system stability, but not for maximum performance.

Save As User Defaults

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use

Restore User Defaults

To set this feature, select Restore User Defaults from the Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

Boot Override

Listed on this section are other boot options for the system (i.e., Built-in EFI shell). Select an option and press <Enter>. Your system will boot to the selected boot option.

Notes

Appendix A

BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue with bootup. The error messages normally appear on the screen.

Fatal errors will not allow the system to continue to bootup. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list correspond to the number of beeps for the corresponding error.

A-1 BIOS Error Beep Codes

BIOS Error Beep Codes		
Beep Code/LED	**Error Message**	**Description**
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps + 1 long beep	Memory error	No memory detected in the system
5 beeps	Display memory read/write error	Video adapter missing or with faulty memory
OH LED On	System OH	System Overheat

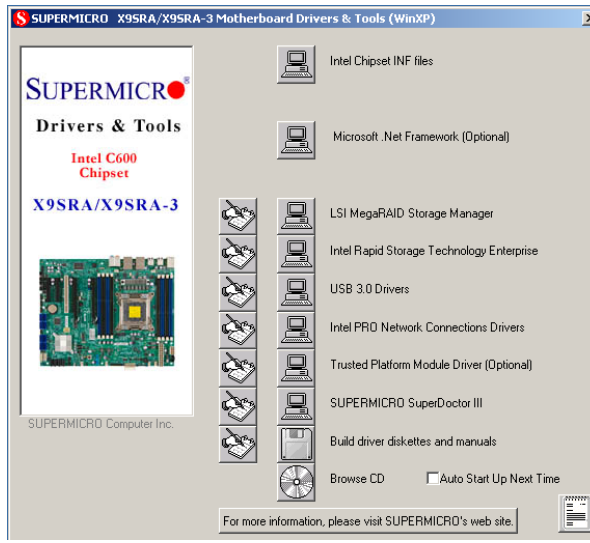
Notes

Appendix B

Software Installation Instructions

B-1 Installing Drivers

After you've installed the Windows Operating System, a screen as shown below will appear. You are ready to install software programs and drivers that have not yet been installed. To install these software programs and drivers, click the icons to the right of these items. (**Note**: To install the Windows Operating System, please refer to the instructions posted on our website at http://www.supermicro.com/support/manuals/.)



Driver/Tool Installation Display Screen

Note 1. Click the icons showing a hand writing on the paper to view the readme files for each item. Click on a computer icon to the right of an item to install this item (from top to the bottom), one at a time. After installing each item, you must reboot the system before proceeding with the next item on the list. The bottom icon with a CD on it allows you to view the entire contents of the CD.

Note 2. When making a storage driver diskette by booting into a Driver CD, please set the SATA Configuration to "Compatible Mode" and configure SATA as IDE in the BIOS Setup. After making the driver diskette, be sure to change the SATA settings back to your original settings.

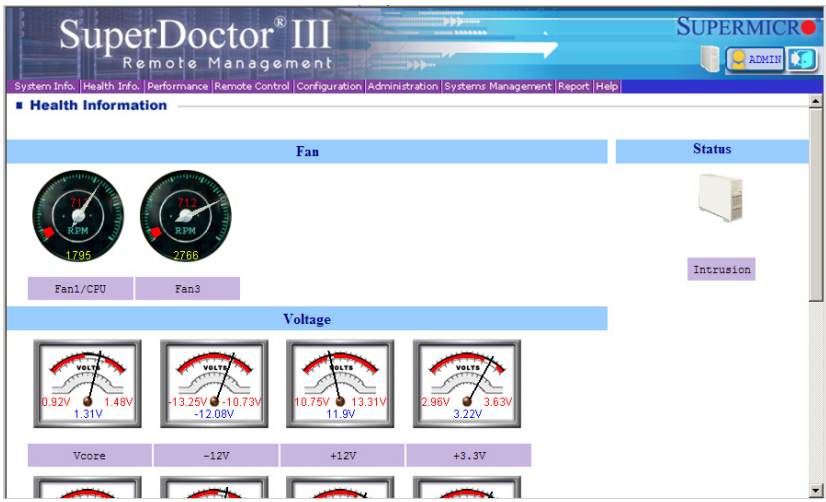
B-2 Configuring SuperDoctor® III

The SuperDoctor III program is a Web-based management tool that supports remote management capability. It includes Remote and Local Management tools. The local management is called the SD III Client. The SuperDoctor III program included on the CDROM that came with your baseboard allows you to monitor the environment and operations of your system. SuperDoctor III displays crucial system information such as CPU temperature, system voltages and fan status. See the Figure below for a display of the SuperDoctor III interface.

Note 1: The default user name and password are ADMIN.

Note 2: In the Windows OS environment, the SuperDoctor III settings take precedence over the BIOS settings. When first installed, SuperDoctor III adopts the temperature threshold settings previously set in BIOS. Any subsequent changes to these thresholds must be made within SuperDoctor, since the SD III settings override the BIOS settings. For the Windows OS to adopt the BIOS temperature threshold settings, please change the SDIII settings to be the same as those set in BIOS.

SuperDoctor® III Interface Display Screen-I (Health Information)



SuperDoctor® III Interface Display Screen-II (Remote Control)

SuperDoctor® III
Remote Management
SUPERMICRO
ADMIN
System Info.
Health Info.
Performance
Remote Control
Configuration
Administration
Systems Management
Report
Help
Remote Control
Graceful Power Control
Open Console
Power Control
Enter
Comm.
Graceful power control (cancelable)
Supero Doctor III allows a user to inform the OS to reboot or shut down the system within 30 seconds. On the system console, a pop-up window will appear with a message telling the local user to save his working files. Before the system reboots or shuts down, it's allowed to cancel the action either locally or remotely.
Power control (noncancelable)
Supero Doctor III allows a user to inform the OS to reboot or shut down the system right away. The system will reboot or shut down without any warning messages. It's not allowed to cancel the action.

Note: The SuperDoctor III software and manual can be downloaded from our Website at: http://www.supermicro.com/products/accessories/software/SuperDoctorIII.cfm. For Linux, we still recommend that you use SuperDoctor II, also downloadable from the link above.

Notes

Appendix C

UEFI BIOS Recovery Instructions

Warning: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you need to update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

An Overview to the UEFI BIOS

The Unified Extensible Firmware Interface (UEFI) specification provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism for add-on card initialization to allow the UEFI OS loader, which is stored in the add-on card, to boot up the system. UEFI offers a clean, hand-off control to a computer system at bootup.

How to Recover the UEFI BIOS Image (-the Main BIOS Block)

An AMIBIOS flash chip consists of a boot sector block and a main BIOS code block (a main BIOS image). The boot sector block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original BIOS image is corrupted. When the system power is on, the boot sector codes execute first. Once it is completed, the main BIOS code will continue with system initialization and bootup.

Note: Follow the BIOS Recovery instructions below for BIOS recovery when the main BIOS block crashes. However, when the BIOS Boot sector crashes, you will need to send the motherboard back to Supermicro for RMA repair.

To Recover the Main BIOS Block Using a USB-Attached Device

This feature allows the user to recover a BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB Hard Disk drive cannot be used for BIOS recovery at this time.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.

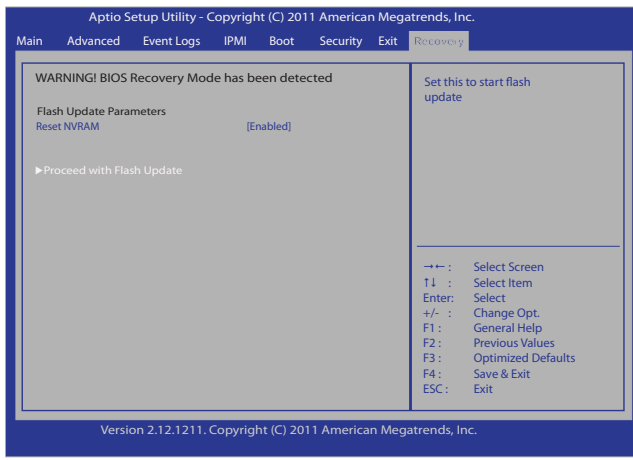
Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it to "Super.ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("Super.Rom") into your USB drive and power on the system

3. While powering on the system, keep pressing <Ctrl> and <Home> simultaneously on your PS2 or USB keyboard until your hear two short beeps. This may take from a few seconds to one minute.

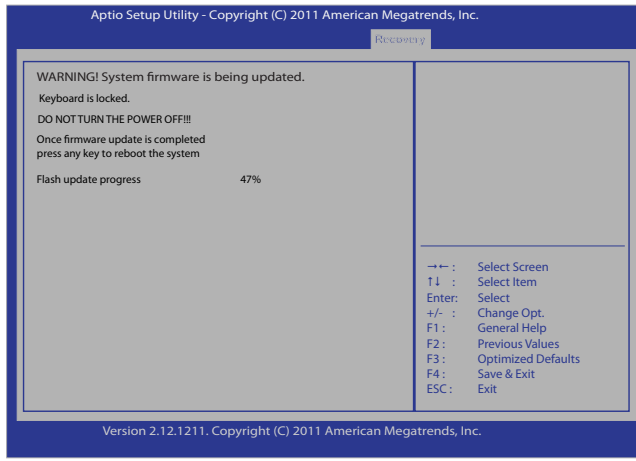
4. After locating the new BIOS binary image, the system will enter the BIOS Recovery page as shown below.

Note: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.

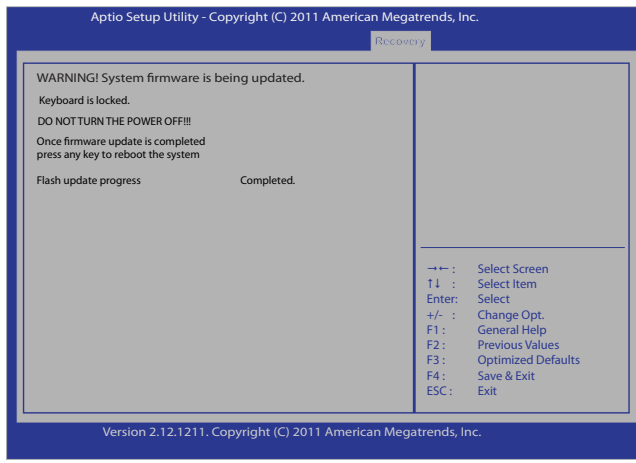


5. When the screen as shown above displays, using the arrow key, select the item- "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS Recovery as shown in the screen below.

Note: *Do not interrupt* the process of BIOS flashing until it is completed.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Recovery
WARNING! System firmware is being updated.
Keyboard is locked.
DO NOT TURN THE POWER OFF!!!
Once firmware update is completed
press any key to reboot the system
Flash update progress 47%
→←: Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.12.1211. Copyright (C) 2011 American Megatrends, Inc.

6. After the process of BIOS Recovery is complete, press any key to reboot the system.


Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
Recovery
WARNING! System firmware is being updated.
Keyboard is locked.
DO NOT TURN THE POWER OFF!!!
Once firmware update is completed
press any key to reboot the system
Flash update progress Completed.
→←: Select Screen
↑↓ : Select Item
Enter: Select
+/- : Change Opt.
F1 : General Help
F2 : Previous Values
F3 : Optimized Defaults
F4 : Save & Exit
ESC : Exit
Version 2.12.1211. Copyright (C) 2011 American Megatrends, Inc.

7. Using a different system, extract the BIOS package into a bootable USB flash drive.

8. When a DOS prompt appears, type AMI.BAT BIOSname.### at the prompt.

Note: *Do not interrupt* this process until BIOS flashing is completed.

9. After seeing the message that BIOS update is completed, unplug the AC power cable to clear CMOS, and then plug in the AC power cable to power on the system.

10. Press <Del> continuously to enter the BIOS Setup utility.

11. Press <F3> to load default settings.

12. After loading default settings, press <F4> to save the settings and exit the BIOS Setup utility.

(Disclaimer Continued)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.